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ABSTRACT

The U.S. General Accounting Office (GAO) undertook a study of Gallaudet University's pre-college national mission activities which focus on (1) research, development and evaluation of teacher guides and other educational materials for hearing-impaired students and (2) dissemination of these products and technical assistance to educators of the deaf. The study found inadequacies in Gallaudet's accounting system that makes it impossible to determine exactly what proportion of the pre-college budget is being spent on national mission activities (as opposed to the expenses of operating the model elementary and secondary schools which are also part of the program), but estimated total national mission expenditures at about $9 million annually. Recordkeeping on individual research projects was found to be sporadic and projects were not well monitored. Strong customer satisfaction was found among recipients and users of pre-college products and services, although it was determined that Gallaudet's marketing strategy, which relies primarily on the bookstore catalog, has resulted in limited dissemination. The GAO recommended improvements in the accounting system, development of written policies and procedures for approving and monitoring research projects, and re-evaluation of the overall pre-college marketing strategy to increase availability of products and services to the hearing-impaired. (Author/VW)

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United States General Accounting Office

GAO

Report to the Subcommittee on the Handicapped, Committee on Labor and Human Resources, U.S. Senate

September 1987

DEAF EDUCATION

The National Mission of Gallaudet's Elementary and Secondary Schools

U.S. DEPARTMENT OF EDUCATION
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United States
General Accounting Office
Washington, D.C. 20548

Human Resources Division

B-216939

September 30, 1987

The Honorable Tom Harkin
Chairman, Subcommittee on the Handicapped
Committee on Labor and Human Resources
United States Senate

The Honorable Lowell P. Weicker
Ranking Minority Member
Subcommittee on the Handicapped
Committee on Labor and Human Resources
United States Senate

In response to the Subcommittee's request, this report discusses the national mission activities of Gallaudet's elementary and secondary schools.

We are making recommendations to the President of Gallaudet University to provide separate reporting for school operations and national mission costs, to improve Gallaudet's controls over research projects, and to reevaluate Gallaudet's strategy for marketing Pre-College materials.

Copies of this report are being sent to appropriate House and Senate committees, the President of Gallaudet University, the Secretary of Education, the Chairman of the Commission on Education of the Deaf, and other interested parties.

Richard L. Fogel
Assistant Comptroller General

Executive Summary

Purpose

Since 1970, Gallaudet University has operated two pre-college schools—the Model Secondary School and the Kendall Demonstration Elementary School. These schools serve two purposes: educating hearing impaired students and conducting research, development, and dissemination activities that are related to educating the deaf and are national in scope.

The former Chairman, Subcommittee on the Handicapped, Senate Committee on Labor and Human Resources, requested that GAO review Gallaudet's Pre-College national mission activities. The Chairman expressed particular interest in

- the kinds of activities that make up the "national mission,"
- how much is spent for "national mission" activities,
- how well Pre-College research results are disseminated, and
- recommendations for improvements.

Background

Gallaudet University, located in Washington, D.C., is the only 4-year liberal arts school for the deaf in the world. Established in 1856, Gallaudet's mission was expanded by the Congress in 1966 to include the operation of the secondary school, and again in 1970 to operate the elementary school as a national demonstration program.

Together the elementary and secondary schools, known as Gallaudet's Pre-College Programs, were established to (1) educate hearing-impaired children on the Gallaudet campus and (2) conduct research on deaf education and develop products that are intended to promote positive educational changes in other schools serving hearing-impaired students. Pre-College products disseminated through the Gallaudet bookstore include student readers and workbooks; teacher guides and assessment tools; and products of general interest, such as posters and game boards.

Eighty-two percent of Gallaudet's total budget is provided by a federal appropriation through the Department of Education, which has oversight over the school's budget.

GAO's review included (1) telephone interviews with a stratified random sample of purchasers of Gallaudet's products and services and (2) visits to eight of the elementary and secondary schools contacted by phone. (See pp. 54-56.)

Results in Brief

Research, development and evaluation of teacher guides and other educational materials, and dissemination of these products and technical assistance to educators of the deaf constitute the Pre-College national mission activities. The proportion of the Pre-College budget being spent to carry out national mission activities, as opposed to operating the Kendall and Model schools, cannot be determined from Gallaudet's accounting system. However, Gallaudet estimated that it spends about $9 million annually on the Pre-College national mission.

Gallaudet also estimated the costs of specific Pre-College research projects in ranges because the actual costs of individual projects are not documented. In addition, recordkeeping on individual research projects was sporadic and lacked evidence that projects were monitored.

GAO's survey of the recipients of Pre-College products and services found strong customer satisfaction. Yet, Gallaudet's marketing strategy, which relies primarily on the bookstore catalog, has resulted in limited dissemination of its products and services.

Principal Findings

National Mission Costs Are Estimates

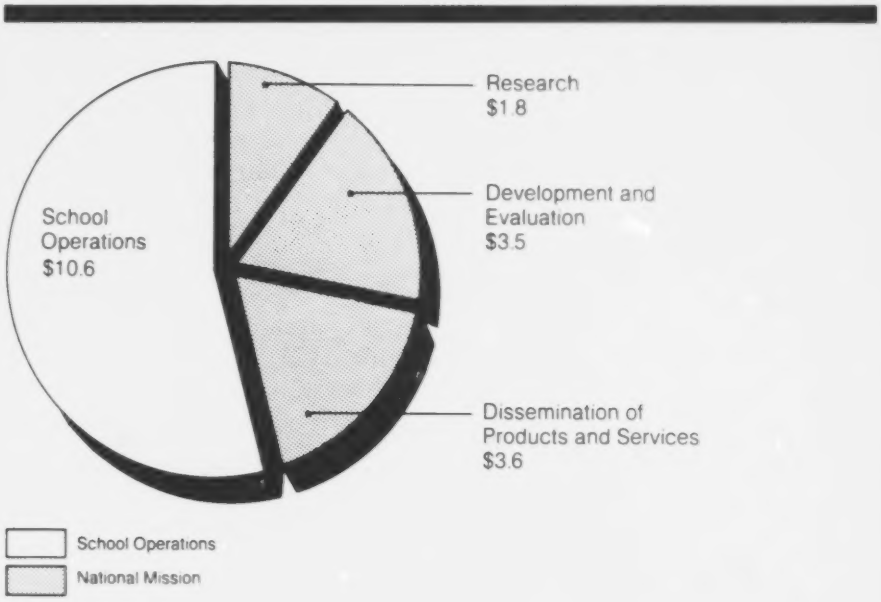
Gallaudet's accounting system allocates and records costs by organizational unit or department, rather than the mission being accomplished. However, for the purpose of GAO's study, Gallaudet estimated that about 46 percent of its Pre-College budget for fiscal year 1986 went to the national mission. This figure reflects Gallaudet's estimates of the time spent by teachers, staff, and administrators on national mission tasks as well as a prorated share of the Pre-College overhead costs. Figure 1 shows how Gallaudet allocated its Pre-College budget among the major national mission activities. (See pp. 18-26.)

Research Activities Need Better Monitoring and Accounting of Costs

GAO gathered information on all 43 pre-college research projects conducted during fiscal years 1984-86 and found that Gallaudet does not account for costs on individual projects. Using cost ranges, Gallaudet estimated the costs of 26 projects at $10,000 or under; 8 between $10,000 and $50,000; 3 between $50,000 and $100,000; 4 between $100,000 and $250,000; and 2 between $250,000 and $500,000.

Gallaudet lacked written policies and procedures for approving and monitoring its Pre-College research projects. Monitoring of individual

Figure 1: Allocation of Pre-College Budget (Fiscal Year 1986)
(Dollars in Millions)



projects was largely undocumented. Project files were scattered among the various Gallaudet researchers, and many files were missing essential documents, such as project proposals and progress reports. After GAO's initial work, Pre-College officials began to take steps to better control their projects. They are requiring that on all newly started projects, complete project files be maintained, including applications, proposals, and progress reports, and they are coordinating their efforts with other research groups within the university. (See pp. 27-32.)

Marketing Strategy Results in Limited Dissemination of Pre-College Products

Research and product development results are not reaching as many hearing-impaired students as they might. The Pre-College Programs rely primarily on the Gallaudet bookstore catalog and advertising in other Gallaudet publications to disseminate product information.

In fiscal year 1985, only 38 of the 133 classroom-related materials, such as student workbooks and teacher guides, had sales of 100 or more copies each. GAO estimated that Gallaudet was selling its more popular products to schools that educate between 30 and 60 percent of the nation's 75,000 hearing-impaired, school-age population. (See pp. 39-46.)

Training and Technical Assistance Focusing More on Public Schools

About 70 percent of the nation's hearing-impaired students are enrolled in public schools. Before fiscal year 1984, the Pre-College focused its training and technical assistance on residential schools—46 of the 71 recipients of such training and technical assistance. It has since broadened its focus to include 14 more public schools. (See pp. 50-52.)

Most Users Liked Products and Services

GAO's survey of purchasers of Pre-College materials and participants who received training and technical assistance indicated that about 90 percent of the respondents were highly satisfied with the quality of Pre-College products and services. In addition, over 85 percent of the survey respondents indicated that they would consider ordering materials or requesting Pre-College training and technical services in the future. A survey of 25 educators from schools that had not recently purchased Pre-College materials indicated that they believed other products had better subject area coverage or addressed teaching objectives better. Many of these individuals preferred to teach hearing-impaired students from regular classroom materials. (See pp. 47-49.)

Recommendations

GAO recommends that Gallaudet University:

- Establish a system to account for expenditures according to the Pre-College Programs' major functions (school operations or national mission) and reflect more accurately its research costs by accounting for costs by individual projects.
- Develop written policies and procedures for approving and monitoring research projects dealing with the pre-college population.
- Reevaluate the overall Pre-College marketing strategy, in order to determine how Gallaudet's products can be made available to more of the hearing-impaired population.

Agency Comments

Gallaudet said that this and prior GAO reports have proved valuable in its efforts to manage its programs efficiently and effectively. While Gallaudet had some concerns about distinguishing its national mission from school operation costs and balancing effective internal controls with its creative process in research, it is planning actions in response to each GAO recommendation.

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Abbreviations

GAO General Accounting Office
HEGIS Higher Education General Information Survey

Chapter 1

Introduction

Gallaudet University, the only 4-year liberal arts school for the deaf in the world, was established in Washington, D.C., in 1856 and incorporated by the Congress in 1857. Over 100 years passed before the Congress expanded Gallaudet's mission in 1966 to include the operation of the Model Secondary School for the Deaf and again in 1970 to operate the Kendall Elementary School as a national demonstration program.. Together the elementary and secondary schools are known as Gallaudet's Pre-College Programs and, as shown in figure 1.1, constitute one of the three major functions of the university.

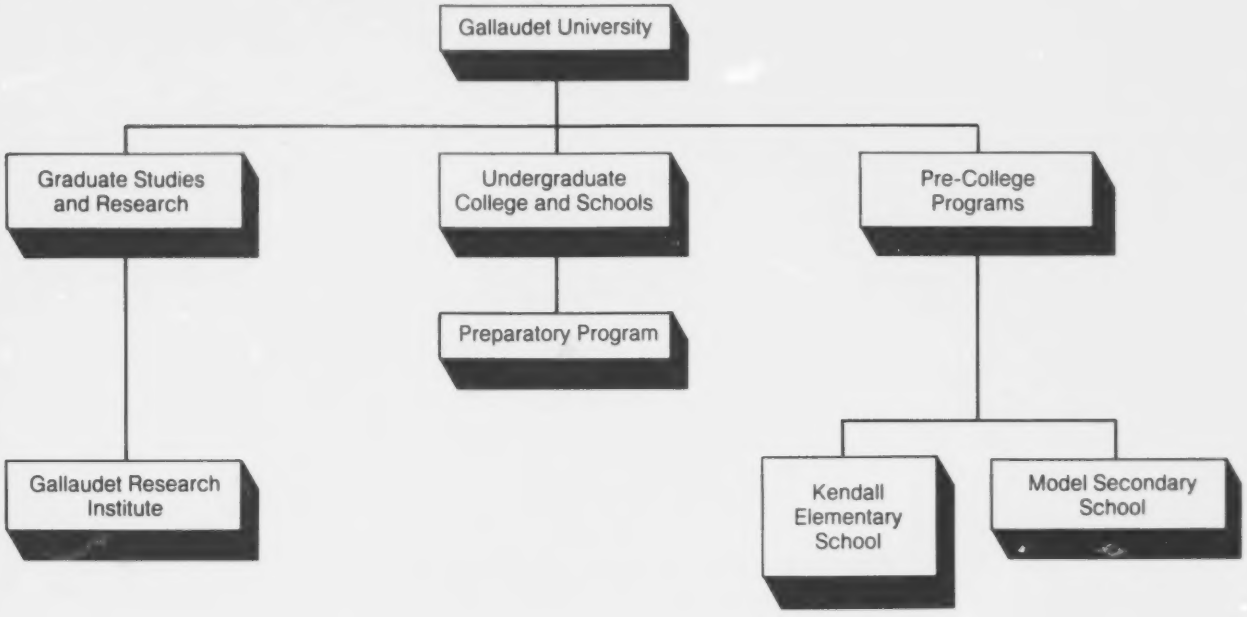
Gallaudet's total budget for fiscal year 1986 was $74.9 million, which consisted of a $59.3 million federal appropriation through the Department of Education, $2.4 million in federal grants, and $13.2 million in other income from such items as tuition and fees, grants, and gifts. Of the $59.3 million appropriated, the Congress earmarked $19.1 million for the Pre-College Programs. In addition, for these programs, Gallaudet spent $400,000 from the university's budget, and outside sources contributed another $100,000—bringing the total to $19.6 million. The combined enrollment at the Kendall and Model schools in the fall of 1986 totaled 564 students.

Pre-College Programs Mission

The Congress established the Pre-College Programs to (1) educate hearing-impaired children at the elementary and secondary level on the Gallaudet campus, (2) conduct research on deaf education, and (3) disseminate the educational materials and techniques resulting from that and other research. Dissemination of those materials is intended to promote educational changes in other schools and programs for the hearing impaired. Activities conducted under research and dissemination constitute the Pre-College Programs' "national mission" to stimulate excellent programs for the hearing impaired.

Kendall Demonstration Elementary School (see fig. 1.2) serves residents primarily of the District of Columbia and its Maryland and Virginia suburbs. Its fall 1986 enrollment was 197 students. Deaf children may attend the Kendall School from infancy to age 15, but not beyond the eighth grade or its equivalent. Kendall is a nonresidential (day) school, but has apartments designed to accommodate parents and children who may come for diagnostic purposes. Fiscal year 1986 federal funds allocated to Kendall totaled $6.8 million.

Figure 1.1: Organization of Gallaudet University



The Model Secondary School for the Deaf (see fig. 1.3), which has both day and residential facilities, draws students from all states, but primarily from the District of Columbia and the surrounding states of Delaware, Maryland, Pennsylvania, Virginia, and West Virginia. This school's purpose is to prepare the hearing impaired for college and other advanced studies and to provide an exemplary secondary school program to stimulate the development of similar programs throughout the nation. Fall 1986 enrollment totaled 367 students, and fiscal year 1986 federal funds were earmarked at $12.3 million.

Objectives, Scope, and Methodology

On July 11, 1985, the former Chairman, Subcommittee on the Handicapped, Senate Committee on Labor and Human Resources, asked us to provide information on several aspects of deaf education. In a February 1986 report[1] we provided information on how Gallaudet University and the National Technical Institute for the Deaf compare to the four schools

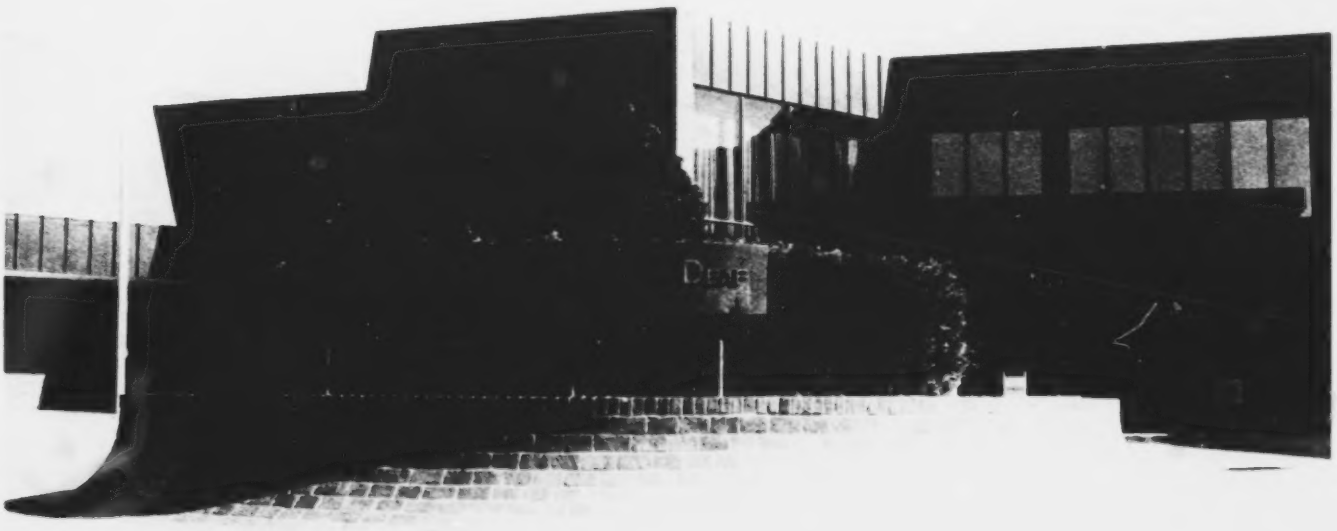
[1]Deaf Education: Costs and Student Characteristics at Federally Assisted Schools (GAO/HRD-86-64BR, Feb. 14, 1986).

Figure 1.2: Kendall Demonstration Elementary School

participating in the Regional Postsecondary Education Program for the Deaf.

This report addresses the second part of the Subcommittee's request, covering Gallaudet's Pre-College Programs' efforts to serve as a model and stimulus for the development of other excellent deaf education programs. Specifically we were asked to

Figure 1.3: Model Secondary School for the Deaf



- describe the kinds of activities that make up the Pre-College "national mission,"
- determine the amount spent for "national mission" activities,
- determine how well the Pre-College Programs' research results are disseminated, and
- identify any recommendations for improvements.

A related objective was to augment the work of the Commission on Education of the Deaf, established by title III of the Education of the Deaf Act of 1986 (Public Law 99-371), enacted on August 4, 1986. The Commission was to study elementary, secondary, postsecondary, adult, and continuing education for the deaf, including the role played by Gallaudet's elementary and secondary schools.

To meet these objectives, we conducted field work at Gallaudet University and other locations from March 1986 to January 1987. At Gallaudet we obtained information on the Pre-College Programs' research projects and product sales for fiscal years 1984-86 and on the Programs' training and technical assistance activities since 1978, the year Gallaudet first begin providing these activities. We also obtained a description of the process followed in developing and evaluating curricula and programs. We reviewed Gallaudet's rationale for estimating the costs of national mission activities for fiscal years 1984-86. We also reviewed the Programs' research activities and prepared profiles on six projects Gallaudet said were representative of its research. In addition, we evaluated the Programs' marketing approach for disseminating products and its training and technical assistance activities.

Our review of the national mission included telephone interviews with a stratified random sample of purchasers of Gallaudet's products or services. The interview responses were projected to the universe of schools, individuals, or associations that purchased certain products during fiscal years 1984-86 and/or participated in Pre-College training and technical assistance between 1978 and 1986. These interviews were used to measure consumers' perceptions of the quality and utility of Pre-College products, training, and technical assistance. A more detailed description of our methodology is presented in appendix I. Figure 1.4 shows the geographic distribution of these interviews.

We also visited eight schools (see fig. 1.5) from among the elementary and secondary schools we contacted by phone. They were judgementally selected to provide a variety of (1) school types (private, public, residential, day, elementary, secondary); (2) geographic locations and settings (urban and rural); and (3) quantities and kinds of products purchased and services received. We made these visits primarily to verify the information obtained during the telephone interviews and review how the Pre-College products had been incorporated into the instructional program. While at the schools, we also observed classes using the products and discussed the quality and utility of Pre-College products and services with school officials.

Figure 1.4: Geographic Dispersion of Telephone Interviews

We also interviewed officials by phone at 25 schools that educate deaf children but purchased no Pre-College products covered by our review.

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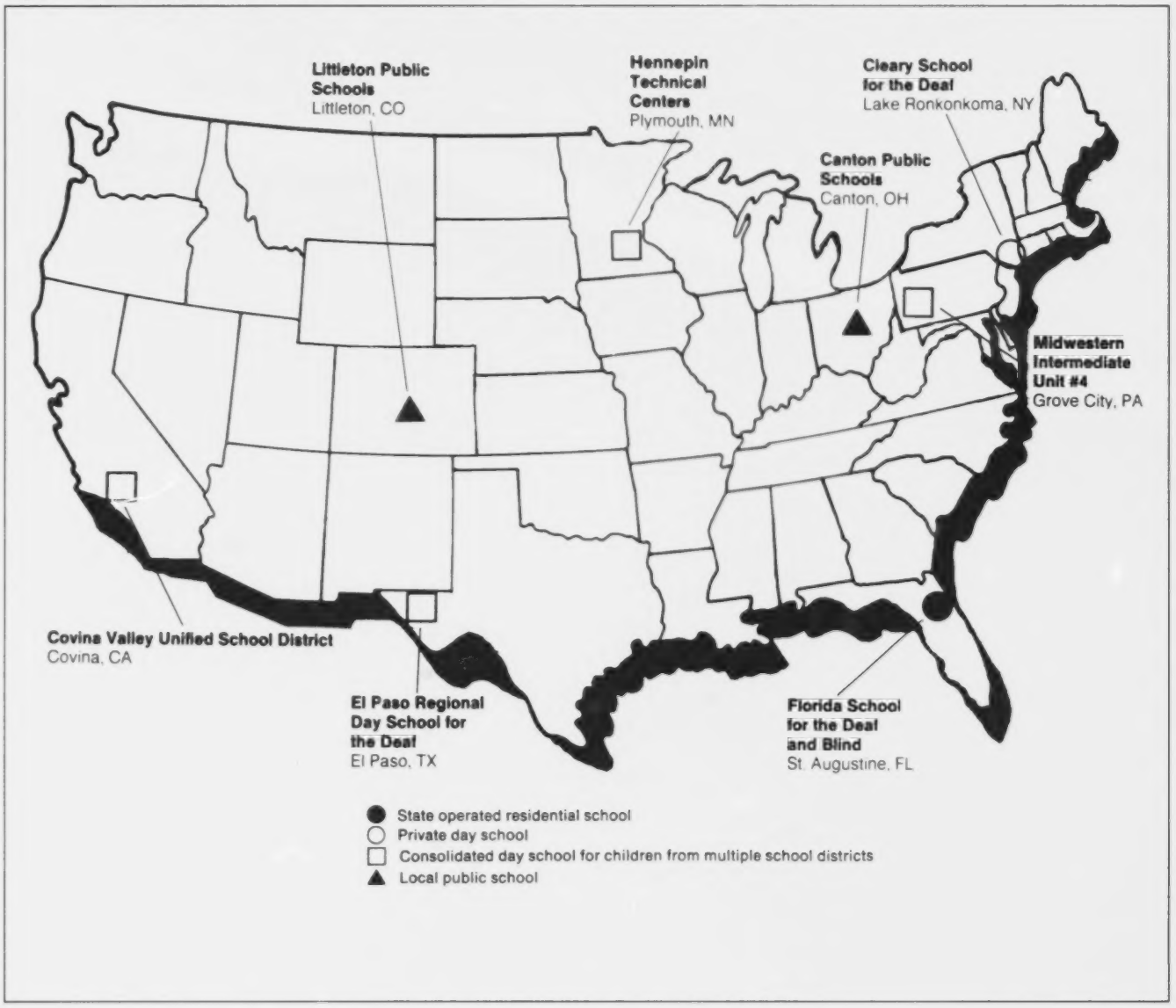
Figure 1.5: Geographic Dispersion of Schools Visited



We judgementally selected these schools from an April 1986 list prepared by the American Annals of the Deaf using criteria similar to those used in selecting the schools for the telephone interviews mentioned earlier. These criteria included school type, size of school enrollment, and

geographic dispersion. We also included several schools from the Model School's primary service area in states surrounding Washington, D.C.; some schools that used only the oral method (lip reading) to teach hearing-impaired students; and some that used both the oral method and sign language in their classes. Each school met at least one or more of these criteria. The interviews focused on whether the schools had ever purchased Pre-College materials to educate hearing-impaired children. We also asked them if they had purchased other publishers' materials and why. Information gathered from these interviews provided additional insight regarding the quality and utility of Pre-College materials.

We performed our review in accordance with generally accepted government auditing standards.

Chapter 2

Gallaudet's Pre-College Programs: National Mission Activities and Costs

In carrying out its national mission to stimulate excellent educational programs for the hearing impaired, Gallaudet's Pre-College Programs conducts activities in three areas: research, development and evaluation of curricula and programs, and dissemination of products and services (training and technical assistance). We could not determine the cost of these activities from Gallaudet's records because its accounting system does not accumulate costs according to national mission categories. For purposes of our study, however, Gallaudet developed an estimate of how the budget for Pre-College Programs was divided between operating the Kendall and Model schools and conducting national mission activities. As shown in figure 2.1, Gallaudet estimated that of its $19.6 million Pre-College budget, $10.6 million was used for school operations and $9 million was spent on national mission activities.

Gallaudet's estimates of the costs allocated to its national mission versus school operations involved considerable judgment. The way these judgments are made can affect one's impression of the emphasis devoted to the national mission or of how efficiently the schools are operated. We note, for example, that changes in certain cost estimates produced significant changes in the per student cost of school operations. A system for accumulating the actual costs and allocating overhead to these activities would enable Gallaudet and the Congress to make more-informed decisions on the management and direction of the Pre-College Programs.

National Mission Activities

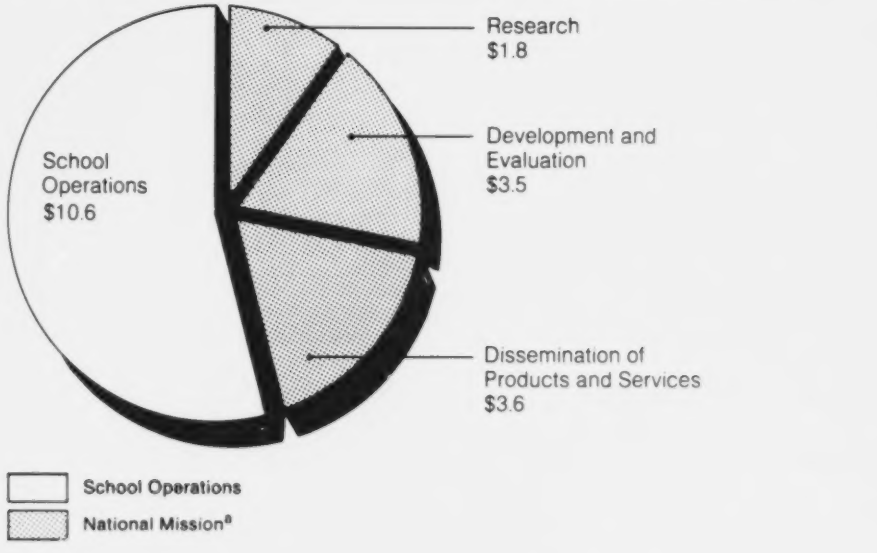
The flow of activity for carrying out the national mission, from identifying needed research to disseminating research products, is depicted in figure 2.2.

Research

The research category includes all forms of basic and applied research undertaken to improve the educational achievement and social and emotional well-being of hearing-impaired, school-age children. Research needs may be identified by Pre-College or Gallaudet University faculty and staff. The Programs' overall research effort comprises research done by the Gallaudet Research Institute;[1] other departments within the university; Pre-College faculty; and, to a lesser degree, non-Gallaudet researchers, such as visiting scholars from other institutions of higher learning. These researchers use the Pre-College students as a living laboratory in conducting their research. Research proposed and conducted

[1]The Research Institute serves as the university's major research facility. It conducts research in deafness affecting all ages of the population from infants to the elderly.

Figure 2.1: Estimated Costs for School Operations and National Mission (Fiscal Year 1986) (Dollars in Millions)



[a]Detail does not add to $9 million due to independent rounding

by the Pre-College staff is approved by the Pre-College dean. The Institute's research projects are approved by the university provost. Research proposed by non-Gallaudet researchers is approved by either the dean or provost. Pre-College research activities are discussed in more detail in chapter 3.

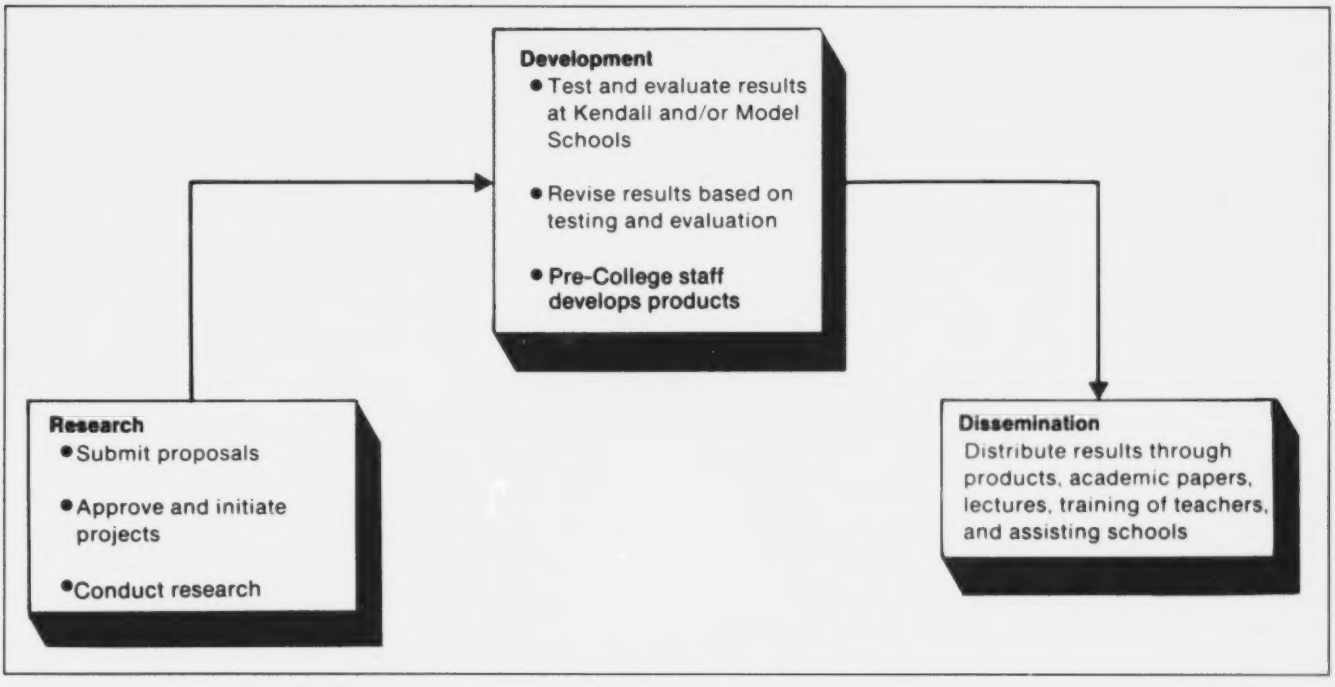
Development and Evaluation

Gallaudet considers development and evaluation of curricula and programs as the "core" of the Kendall and Model schools' national mission. These activities include (1) developing courses, curriculum guides, and comprehensive student data bases and (2) evaluating all instructional programs and products under development. The ultimate goal is to disseminate products or services that will improve deaf education practices in other schools in the nation. Product development and evaluation is explained further, along with research, in chapter 3.

Dissemination

When research efforts result in the successful development of a new product, curriculum, or technique, efforts are made to disseminate the

Figure 2.2: Flow Chart for National Mission Activities

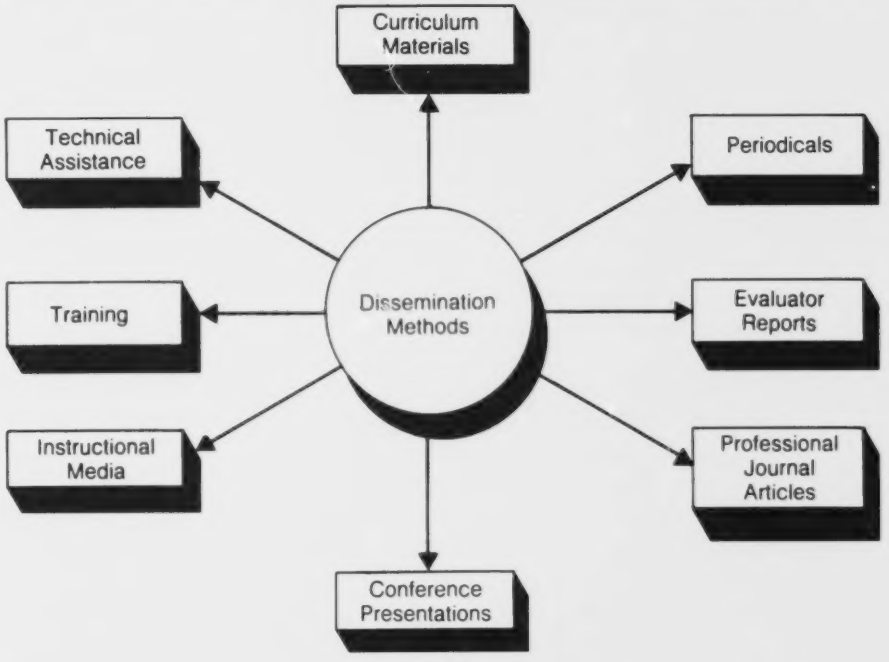

Development
• Test and evaluate results at Kendall and/or Model Schools
• Revise results based on testing and evaluation
• Pre-College staff develops products
Research
• Submit proposals
• Approve and initiate projects
• Conduct research
Dissemination
Distribute results through products, academic papers, lectures, training of teachers, and assisting schools

results to the educational community serving the hearing impaired. As shown in figure 2.3, dissemination can take many forms.

Training in the use of deaf education products and techniques is provided to various groups, such as teachers, administrators, and other school support staff, frequently in the form of workshops or seminars.

Technical assistance, in contrast to the group instruction typical of training activities, tends to be a one-on-one activity between Pre-College Programs' staff, and teachers, administrators, and other support staff at the schools receiving the technical assistance. Technical assistance activities often take the form of (1) consultant services to help schools identify and solve their educational problems, such as helping them deal with the social and emotional development of their students, or (2) special assistance in such areas as educational needs assessments or workshop planning.

Figure 2.3: Methods Used to Disseminate Products and Services



A more complete discussion of the full range of methods that the Pre-College uses to disseminate its products and services is included in chapter 4.

Estimated Costs of National Mission Activities

Because Gallaudet's accounting system does not separately categorize national mission costs from the costs of operating the two Pre-College schools, we could not determine how much of the $19.6 million budget was spent on national mission activities. Gallaudet reports its expenditures according to the Higher Education General Information Survey (HEGIS), conducted annually by the Department of Education and used by many colleges and universities. The system allocates and records costs by organizational unit or department, rather than the mission being accomplished. For example, instructional time spent on national mission activities in the fine arts department is not identifiable as national mission cost in the accounting system. However, at our request, Gallaudet developed estimates of these costs for use in our study.

The costs shown in table 2.1 are Gallaudet's "best estimate" of the allocation between the national mission and school operations. The estimates, which were provided by the Pre-College dean based on his knowledge of Pre-College salaries and other operating expenses, included the following factors:

- Analysis of the tasks performed by Pre-College teachers and support staff. For example, $1.3 million of the $4.7 million in instruction costs was allocated to the national mission based on Gallaudet's estimate that 27 percent of teachers' efforts were devoted to national mission tasks.
- Estimate of support provided by centralized units, such as the art, printing, and photo departments. Gallaudet estimated that 70 percent of this support was focused toward production of products for the national mission.
- Allocation of Gallaudet Research Institute costs for its support of Pre-College related research. Each year the Pre-College transfers a certain amount of money from its budget to the Gallaudet Research Institute to cover the costs of research on the pre-college population. During fiscal year 1986, the Pre-College transferred $696,000, and this amount was assigned to the national mission. This contributed to its total estimated research cost.
- Allocation of 52 percent of institutional support to the national mission because Gallaudet believes the Pre-College facilities would not exist in their present configuration were it not for the national mission.

Table 2.1: Allocation of Pre-College Costs Between National Mission and School Operations (Fiscal Year 1986)

Dollars in millions

HEGIS-based cost categories	National mission activities	Operation of schools	Total costs
Instruction	$1.3	$3.4	$4.7
Academic support	1.4	.8	2.2
Research	1.1	0	1.1
Student services	.8	3.5	4.3
Program planning and administration	1.9	.7	2.6
Institutional support	2.5	2.2	4.7
Total	**$9.0**	**$10.6**	**$19.6**

Gallaudet provided a further breakdown of the estimated national mission costs showing how the amount in each cost category in table 2.1 was allocated across national mission activities (see table 2.2). For example, Gallaudet estimated that 80 percent ($1,030,000) of the $1.3 million for national mission instruction costs was spent developing and

evaluating curricula and programs and that the remaining 20 percent was divided equally among research, dissemination, training, and technical assistance activities.

Table 2.2: Gallaudet Estimates of National Mission Costs for Fiscal Year 1986

Dollars in thousands

HEGIS-based category	Research	Development and evaluation	Dissemination			Total
			Materials	Training	Technical assistance	
Instruction	$60	$1,030	$60	$60	$60	$1,270
Academic support	100	710	330	100	180	1,420
Research	1,140	0	0	0	0	1,140
Student services	40	410	50	130	130	760
Program planning and administration	130	380	810	300	300	1,920
Institutional support	370	990	370	370	370	2,470
Total	**$1,840**	**$3,520**	**$1,620**	**$960**	**$1,040**	**$8,980**

How Variations in Estimates Can Affect the Balance Between National Mission and School Operations

Gallaudet's estimates of the costs allocated to national mission activities, as opposed to school operations, involved considerable judgment on its part, which will be discussed further in chapter 3. The way these judgments are made can affect one's impression of the emphasis being given the national mission. For example, in the category of instruction, if teachers spent 17 percent of their time on national mission tasks rather than 27 percent as Gallaudet estimated for fiscal year 1986, the emphasis given the national mission would have been 43 percent rather than 46 percent of the total Pre-College budget.

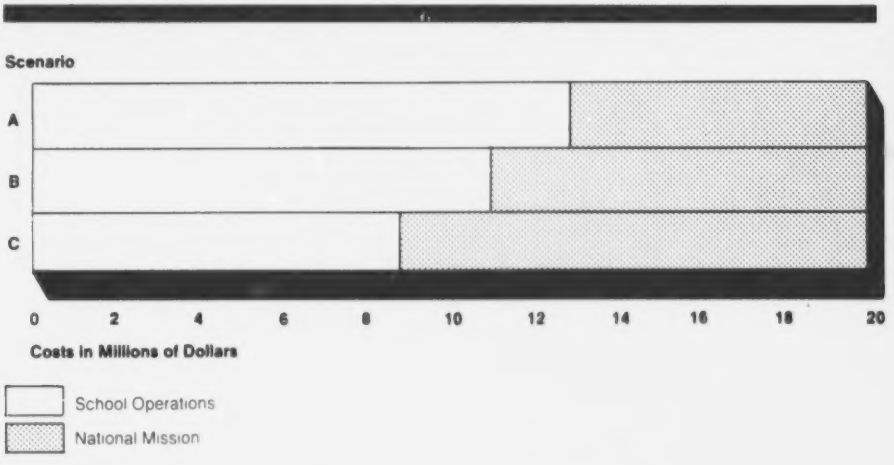
Such judgments also affect estimates of school operation costs. For example, the Pre-College's cost per student for school operations during fiscal year 1986 was $18,200. This was based on Gallaudet's estimate of 27 percent of instruction time devoted to the national mission. If teachers spent 17 percent, as opposed to 27 percent, of their time on the national mission, Pre-College costs per student[2] for school operations in 1986 would increase from $18,200 to $19,000.

Similarly, about 60 percent of the total overhead costs of $7.3 million ($2.6 million for program planning and administration and $4.7 million

[2]Cost per student is a frequently used measure of efficiency regarding school operations and is often used by the Congress to compare cost between educational institutions.

for general institutional costs) was allocated by Gallaudet to the national mission. Since much of this cost would be necessary to operate the schools even without the national mission, an argument could be made that these costs should be split evenly between national mission and school operations. This would add $720,000 to school operating costs and further increase the per pupil cost to $20,300.

Figure 2.4: School Operation Costs Fluctuate With Shifts in National Mission Costs



School Operation Cost Per Student
Scenario A — $21,600
Scenario B — $18,200 (Gallaudet's Estimate)
Scenario C — $14,800

Figure 2.4 uses the Pre-College budget of $19.6 million to further illustrate how changes in the costs allocated to the national mission affect the costs allocated to school operations. This in turn results in different costs per student for school operations.

Figure 2.4 assumes three scenarios for allocating costs to the national mission. Scenario A represents an allocation of 36 percent of total Pre-College costs to the national mission and results in a cost per student of $21,600 for school operations. Scenarios B and C use 46 and 56 percent, respectively, as the portion of costs devoted to the national mission. As the figure shows, the estimated costs of educating students at Kendall and the Model schools change significantly depending on the percentage of effort allocated to the national mission.

Gallaudet's estimate that expenditures for national mission activities accounted for 46 percent of its Pre-College Programs' fiscal year 1986 budget appears consistent, however, with figures reported to us during

the preparation of our March 1985 report.[3] At that time, Pre-College cost data for school year 1983-84 represented a national mission allocation of 47 percent of the Pre-College budget.

Conclusions

The Congress has given Gallaudet a specific charter not only to educate hearing impaired students on its Washington, D.C., campus, but also to act as a model demonstration school for the rest of the country. Yet, the proportion of the Pre-College budget being spent to carry out national mission activities, as opposed to operating the Kendall and Model schools, cannot be determined from Gallaudet's accounting system. In our efforts to study the costs of national mission activities, we had to rely on estimates developed for us by Gallaudet. For instance, during instruction, teachers can be engaged in both school operation tasks (direct instruction to the children) as well as national mission activities (evaluating new classroom products). Because differences in how Gallaudet allocates its costs between national mission activities and school operations would in turn affect measurements of school operating costs and national mission emphasis, a system for accumulating direct costs and an empirical method for allocating overhead would enable more-informed decisions and assure better accountability over the management and direction of the Pre-College Programs.

Recommendation

We recommend that the President of Gallaudet University establish a system to account for expenditures according to the Pre-College Programs' major functions—school operations or national mission.

Gallaudet Comments

In a September 18, 1987, letter (see app. V), the President of Gallaudet University stated that the current accounting system follows standards designed to provide consistency and comparability in accounting and reporting among institutions of higher education and to comply with the functional expenditure classifications mandated by the Department of Education. Also, he said that accounting for national mission activities will always involve estimates regardless of the system used. This is because many tasks involving school operations and the national mission overlap or are coincidental, making it difficult or impossible to separate their costs. While the President does not believe that Gallaudet should change its basic functional accounting classifications, he said

[3]Educating Students at Gallaudet and the National Technical Institute for the Deaf: Who Are Served and What Are the Costs? (GAO/HRD-85-34, Mar. 22, 1985).

Gallaudet would seek effective and efficient ways to improve its estimation of national mission costs and to provide parallel accounting records allowing separate reporting for school operations and the national mission.

We agree that Gallaudet should avoid unnecessary changes in its current accounting system. However, rather than developing a parallel system, we believe it is possible to establish recordkeeping procedures that are subordinate to but compatible with its current system and will separately account for national mission activities, such as curriculum development and specific research projects.

Chapter 3

Research and Pre-College Development and Evaluation Activities

Gallaudet's research and Pre-College development and evaluation programs make up a major portion of its national mission activities. Pre-College research focuses on improving the academic achievement and social and emotional well-being of hearing-impaired children. Completed research usually feeds into Pre-College product development efforts.

Product development and evaluation focuses on designing, testing, and evaluating educational programs and curricula, resulting in such products as student workbooks, teacher guides, curriculum guides, and various other publications for dissemination to schools that educate hearing-impaired children. Gallaudet estimated the cost for these activities at $5.3 million in fiscal year 1986—$1.8 million for research and $3.5 million for product development, as shown in figure 3.1.

Research Activities

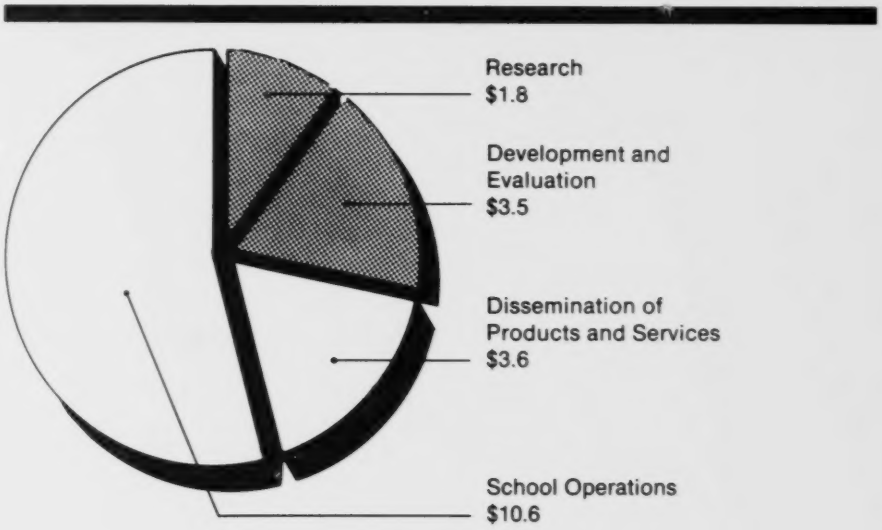
During fiscal years 1984-86, the Pre-College initiated or participated in 43 research projects. In reviewing these projects we found that (1) research had been focused on the residential school environment until 1985, when Gallaudet's first strategic plan identified the mainstream public environment as a priority area for research and development; (2) Gallaudet could not document the costs for the 43 projects; and (3) written procedures and policies had not been developed for approving, monitoring, or evaluating projects. We did not evaluate the quality or relevance of the research because we lacked adequate criteria for such an evaluation.

The 43 research projects ongoing during fiscal years 1984-86 focused on such areas as curriculum development and testing, language and communication, and social and emotional development for hearing-impaired infants, children, and adolescents. This research was conducted by (1) Pre-College teachers and staff, (2) researchers within Gallaudet's Research Institute, and (3) researchers external to Gallaudet that use Kendall and Model schools' students and facilities for their research. (See app. II for description and costs of projects.)

Increased Emphasis Given to Mainstream Environments in Pre-College Research

Although Gallaudet's Pre-College research has focused on improving the academic achievement and social and emotional well-being of hearing-impaired children, it was not until 1985 that research plans began to emphasize hearing-impaired students in mainstream environments. Before then research was focused on residential schools where generally all students are hearing impaired.

Figure 3.1: Estimated Research and Development Portion of Pre-College Costs (Fiscal Year 1986)
(Dollars in Millions)



In 1985, as part of the development of its first strategic plan for school operations, the Pre-College Programs designated mainstreaming and services for children with multiple handicaps for priority emphasis. The plan was to serve as a blueprint for the Kendall and Model schools during school years 1985, 1986, and 1987. It included goals and objectives for meeting these new priorities. The priorities were based on issues discussed in our 1985 report[1] and congressional oversight hearings held during Spring 1985.

We identified two research projects initiated after the development of the strategic plan that specifically emphasized the mainstream environment:

- A project to determine changes in deaf and hearing students' attitudes toward each other in a mainstream environment.
- A project that involved a pilot study with a public high school to test an adapted program for teaching social skills to deaf adolescents.

Further, the Pre-College planned to implement at least four projects during the 1986-87 school year to include integration of Pre-College students for academic subjects in other schools and reverse mainstreaming

[1]See footnote 3 on p. 25.

of hearing students into existing programs within the Kendall and Model schools. According to Gallaudet officials, research planned for the future will address such questions as what criteria are needed to determine the effectiveness of mainstreaming sites, what factors influence the social and emotional development of students in mainstream placements, and what quantitative changes in student learning occur as a result of placement in a mainstream setting.

Research Project Costs Are Estimated in Cost Ranges

The actual costs for the 43 research projects could not be provided by either Pre-College or Research Institute officials. As noted earlier, Gallaudet's financial management system is designed to track costs by educational departments, staff offices, or major research groups—not by research projects. Gallaudet officials told us research project costs are not tracked, except for projects receiving special funding (outside contracts or grants). Further, researchers are not required to record the actual time spent on their projects.

At our request, Gallaudet officials estimated where each project would fall within certain cost ranges. Gallaudet estimated cost ranges for the projects by dividing researchers' salaries by the estimated time spent on the projects. While Gallaudet officials recognize that there may be other costs, they said such costs would be relatively minor. This process produced cost estimates for the 43 projects ranging from less than $10,000 to as much as $500,000, as shown in table 3.1.

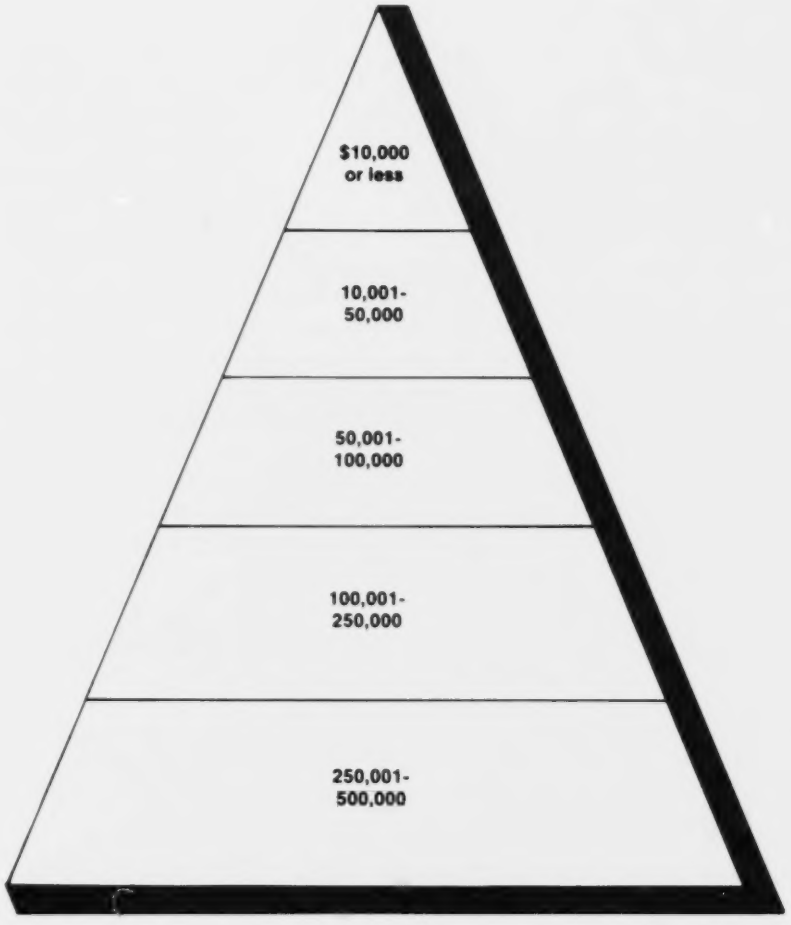
Table 3.1: Estimated Research Project Cost (Fiscal Years 1984-86) (Dollars in Millions)

Cost range	Number of projects
$ 10,000 or less	26
$ 10,001 to $ 50,000	8
$ 50,001 to $100,000	3
$100,001 to $250,000	4
$250,001 to $500,000	2
Total	**43**

Pre-College researchers and those outside Gallaudet conducted most of the projects in the $10,000-or-less range. Gallaudet's Research Institute conducted the six projects estimated to cost more than $100,000 and two of the three projects in the $50,000 to $100,000 range. Some projects also received funding support outside of Gallaudet, but this funding does not flow through Gallaudet. See appendix II for specific

details on each project. Figure 3.2 provides an example project for each cost range.

Figure 3.2.: Examples of Projects by Cost Range



Sample Project Description

Identification of how deaf students with multiple handicaps interact in different classroom settings

Examination of the ability of deaf versus hearing children to distinguish parts of speech having different sound patterns.

Development of a psychological test for improving the clinical assessment of deaf children and adolescents with nerve disorders.

Establishment of comprehensive standards for hearing impaired students on the 1982 edition of the Stanford Achievement Test and development of a set of testing and scoring materials for deaf children.

Examination of how mothers secure and maintain the visual attention of their hearing-impaired infants.

Pre-College Research Projects Lacked Adequate Internal Controls

Effective internal controls are necessary for the early identification of problems, such as excessive cost or time charges, and to help assure that projects are well documented and achieve their intended objectives. Our review of the Pre-College's 43 research projects[2] indicated that Gallaudet has inadequate internal controls for managing its research projects, as evidenced by the lack of written procedures and policies for approving or monitoring projects.

Initiating Projects

Research on the pre-college hearing-impaired population is initiated by researchers from the Pre-College, the Research Institute, and other Gallaudet departments or visiting researchers from other colleges and universities. According to Pre-College officials, the procedures for initiating a research project are informal and unwritten. Researchers usually complete an application, which contains such information as the source of the request, project description, methodology, number of students to be used as subjects for the project, benefits and risks to the participants, and duration of the project.

However, some projects initiated by administrators did not require an application. If an application is submitted, it is reviewed by the Pre-College's dean for curriculum and instruction; the Director of the Center for Curriculum Development, Training, and Outreach; and the coordinator of research and evaluation. During this review, the application is evaluated based on the quality of the study design, the extent to which the project's objectives support the Pre-College goals and priorities, and how the project may affect earlier project commitments. When necessary, the project's feasibility and logistics also may be considered. Final approval of the application is the responsibility of the Pre-College dean, although he told us that he relies heavily upon input from the coordinator of research and evaluation in making his decision.

We were unable to determine if Gallaudet had followed these informal procedures because, as discussed below, Pre-College officials were unable to locate most project folders where job initiation documents should have been located.

[2]Each project is briefly described in appendix II, and six projects are profiled in more detail in appendix III.

Monitoring Projects

Procedures for reviewing and evaluating research projects are also informal, and such monitoring is largely undocumented. Pre-College officials said that they do not consistently keep records on their review and evaluation of projects, which are often discussed in informal meetings or by telephone. In fact, it took Pre-College officials several months to piece together enough documentation to describe all 43 projects. They believe their limited reviews and evaluations are justified by the small size of their research group and the fact that projects are generally conducted by Gallaudet faculty and administrators.

According to Pre-College officials, each researcher is primarily responsible for monitoring the activities of his or her projects. This self-monitoring was again largely undocumented. Project folders were scattered among the various researchers, with many folders missing project applications, proposals, and progress reports.

Despite what we consider to be weak monitoring procedures, Gallaudet officials were knowledgeable about most research activities. In addition, during our review, Pre-College officials began steps to better monitor and control their research. For example, they located some missing information from project folders and, where they were unsuccessful, bridged the gap by interviewing the researchers. Furthermore, Pre-College officials plan to require that all newly started research projects have complete folders, including applications, proposals, and progress reports, and they said their research efforts will be coordinated with the Research Institute. These officials also stated that they are reviewing their reporting procedures for research expenses in order to develop a more accurate method of recording project costs.

Product Development and Evaluation Activities

Gallaudet estimated its fiscal year 1986 costs for product development and evaluation activities at $3.5 million. These activities—the most costly of the national mission—form the bridge between research and dissemination of products. Although most Pre-College products result from Gallaudet research, some are developed separately through the Pre-College.

Products Developed

Each year, according to Gallaudet, anywhere from 10 to 20 new publications make their way through development and evaluation and are prepared for issuance. For example, Gallaudet's most recent bookstore catalog for 1987/1988 lists 20 new Pre-College publications being

offered for sale for the first time. Some examples of these new products include:

- Developing Auditory Skills: Systematic Lessons—A book containing a series of activities to help teachers increase the use of residual hearing among deaf students.
- Information on Sexuality (High School)—Intended for home or classroom use, this book emphasizes the need for wise decisionmaking and personal responsibility in sexual matters. It is geared specifically to hearing-impaired young people.
- Introduction to Communication (High School)—Basic course materials for hearing-impaired students covering one semester of work. Course materials explore areas of sound, hearing, and interpersonal communication; use of communication devices and support services; speechreading; and deaf awareness and culture.
- Music and You (High School)—A manual designed to help teachers provide music instruction to deaf students. Objectives include understanding sound, learning to read music, and playing musical instruments.
- Street Signs (High School)—A manual intended for teachers of driver education for the hearing impaired. This material defines and illustrates basic signs used in safe driving.

How Pre-College Products Are Developed

Developing classroom materials for teachers and hearing-impaired students is a long, complex process. It can take years of effort to implement new course material or substantially revise existing material. Product development within the Pre-College is a process combining teaching materials, instructions for teachers, student activities and assessment, and methods for program evaluation.

The 133 teachers at the Pre-College devote much of their time to activities related to product development. In fact, the largest single cost allocation to product development and evaluation activities (almost 30 percent of the $3.5 million allocated to product development) is the extensive use of Kendall and Model school teachers to develop, test, and evaluate products.

Take, for example, the development of a new curriculum[3] for a field of study such as language arts, math, or science. When Gallaudet recognizes the need for a particular curriculum (through surveys of administrators and teachers as was done in 1980 and 1983), it selects the teacher or teachers responsible for teaching that subject, who then develop a formal description of the need for the course, the goals and instructional objectives to be achieved, and student activities. Gallaudet estimated that depending upon the subject, teachers spend about 2 hours a week throughout the school year on these activities. And, depending on the curriculum area, one teacher or a whole department (about 10 teachers) may be involved.

According to Gallaudet, the 45 teachers at Kendall spend about 20 percent of their time on product development and evaluation activities. While product development is generally a part-time activity for Kendall teachers, in 1983, Kendall permanently assigned four teachers full time to develop, revise, and implement curriculum guides for language, math, science, and social studies. Known as content specialists, the four teachers relied heavily on other teaching faculty to review the content and appropriateness of their work. According to Gallaudet, such a review could be expected to take 2 days to a week of a teacher's time. Teachers are excused from normal teaching duties to work on these projects, either during the year or as summer projects. Gallaudet said that reviewing curriculum guides typically involves two to five teachers.

Gallaudet said that teaching faculty also test Pre-College products before they are sold for use by others. Testing involves (1) using the materials in the classroom for 8 weeks to 8 months, with class time ranging from 1 to 5 hours a week, depending on the subject; (2) spending 1 to 2 hours outside the classroom each week becoming familiar with the products under development; and (3) providing verbal and written feedback on the appropriateness and usefulness of the materials. A portion of this activity (classroom use) might alternatively be allocated to school operations, although in Gallaudet's judgment these resources are more appropriately allocated to the national mission.

At the Model School during fiscal year 1986, Gallaudet estimated that 16 of the school's 88 teacher positions (18 percent) were used for product

[3]A curriculum is a comprehensive plan for a course of study that is offered by a school or other educational institution. It details educational goals and objectives, teaching techniques, teaching materials, activities for learning, and student assessment measures. The term may refer to a plan for a particular course, such as mathematics or science, or may be used to refer to the total offerings required in a math or science program.

development. Unlike Kendall elementary school, the Model School is a high school with 14 educational departments. According to Gallaudet, a major focus of product development efforts at the high school has been to consolidate and make major revisions to all 127 courses within those departments to ensure they had a comprehensive set of goals and objectives. The revised courses were then taught and evaluated as part of the ongoing development process.

The Pre-College product development and evaluation function does not end with the development of a classroom-tested product like a teacher's guide. Classroom testing is followed by implementation, during which the Pre-College evaluates new and revised materials. Information about the successes and difficulties that Pre-College teachers encounter in using the materials can be valuable in training other schools in how to use Pre-College products.

Conclusions

Since 1985, Gallaudet's Pre-College research has begun to place more emphasis on hearing-impaired students in the mainstream environment. However, research projects lack internal controls, and the actual costs of the projects are unknown because there are no requirements to account for project costs. While Gallaudet officials appeared knowledgeable about most research activities, recordkeeping on individual research projects was sporadic and lacked evidence that projects were monitored.

As a result of our review, the Pre-College has recognized the need for better monitoring of research projects and is considering ways to keep track of the costs of individual projects. In chapter 2, we recommended that Gallaudet establish a system to account for expenditures according to either school operations or national mission activities. We believe that the recommended system should be designed so that Gallaudet can more accurately account for the costs of individual research projects.

Recommendations

We recommend that the President of Gallaudet University

- develop written policies and procedures for approving and monitoring research projects dealing with the pre-college population and
- reflect more accurately Gallaudet's research costs by accounting for costs by individual projects.

Gallaudet Comments

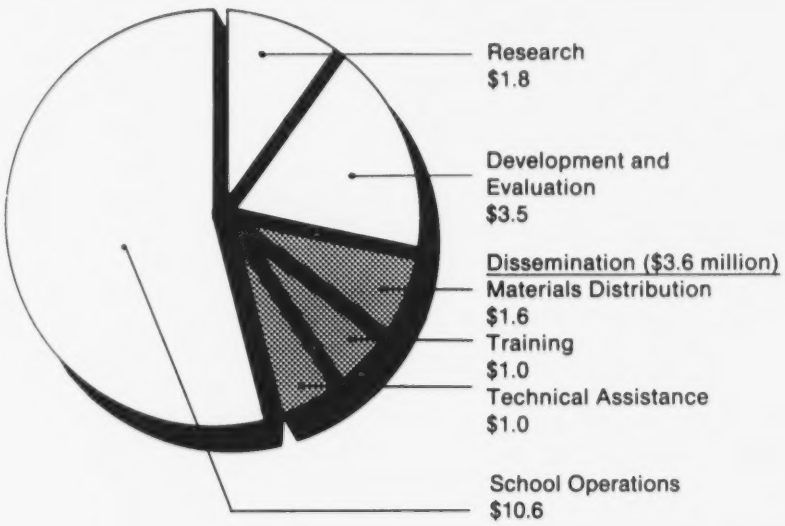
Gallaudet's President said that our report has already been useful in helping to identify areas where internal controls could be improved. However, he noted that Gallaudet's research function is relatively small and believed that its current informal control system is effective. The President expressed concern that "excessive internal control" may interfere with the creative process in research.

We believe that neither developing written policies and procedures for approving and monitoring research projects nor tracking research costs by individual projects will interfere with researchers' creative thought. Gallaudet spends almost $2 million per year on pre-college population research, and we believe our recommendations will give the Congress and Gallaudet management better insight into the administration and cost of these activities.

Dissemination of Products and Services

Dissemination of Pre-College products and services is accomplished by distributing materials and information to parents and professionals; compiling, producing, and distributing publications; serving as a clearinghouse for information on deaf education; and providing training and technical assistance to teachers and support staff at elementary and secondary schools around the country. For fiscal year 1986, Gallaudet estimated the costs for dissemination of Pre-College products and services at $3.6 million (see fig. 4.1).

Figure 4.1: Estimated Costs for Dissemination Activities (Fiscal Year 1986) (Dollars in Millions)



Dissemination of products and services included the distribution of printed classroom materials and periodicals, evaluation reports, conference presentations, articles in professional journals, and instructional media such as filmstrips, transparencies, videocassettes, and computer software.

The Pre-College Programs relied primarily on the Gallaudet bookstore (through its catalog) to disseminate product information and stimulate sales. During 1984-86, most products sold were distributed to schools serving about 30 to 60 percent of the hearing-impaired student population. However, most products sold very few copies. Technical assistance

efforts were focused on residential schools before fiscal year 1984. However, since about 67 percent of the nation's hearing-impaired students are now enrolled in public schools, the focus of Pre-College Programs has been broadened to include more public schools.

While Gallaudet may not be maximizing its marketing potential, our review indicated that about 90 percent of persons and organizations who purchased materials or received training and technical assistance from Gallaudet were highly satisfied. Further, they saw themselves as continuing customers for such materials and services. Some criticisms, however, were that there is a need for materials for children with either higher or lower than average achievement levels and for materials that could be more easily adapted to different classroom situations.

What Products Are Available for Distribution?

The Pre-College disseminates three major categories of products:

- The Gallaudet bookstore catalog.
- Subscriber publications.
- Outreach products.

The catalog lists and describes both university and Pre-College Programs' materials available for purchase through the university bookstore. The catalog, which serves as the Pre-College Programs' primary marketing tool, is widely distributed at Pre-College-sponsored activities and is mailed to current customers, persons who inquire about Pre-College products and services, and teachers affiliated with mainstream programs for the hearing impaired. The catalog is distributed free of charge, and the Pre-College reimburses the Gallaudet bookstore for its share of the catalog's publication and distribution costs. The reimbursement was about $11,000 in fiscal year 1986.

Two subscriber publications are offered for sale by the Pre-College Programs: Perspectives for Teachers of the Hearing Impaired, a periodical containing articles and activities of interest to teachers of the hearing impaired, is published five times a year, and The World Around You, a magazine for hearing-impaired students, is published twice monthly. As of June 1986, there were 3,021 subscribers to Perspectives and 7,680 to The World Around You.

The third major product category—outreach products—includes (1) classroom-related materials; (2) assessment tools, such as those used to evaluate student progress and competence; and (3) products of general

interest, such as posters, game boards, and other activities for hearing-impaired children and young people from preschool through high school age (see app. IV).

In fiscal year 1985, 205 outreach products (see samples in fig. 4.2) were available from the catalog, nearly all of which had been developed by Pre-College staff members. That same year, 22,026 copies of outreach products were distributed. (See fig. 4.3.)

Limited Dissemination of Pre-College Products

Gallaudet's efforts to stimulate excellent educational programs for the hearing impaired rely upon distributing outreach products to educators of the hearing-impaired population outside the Gallaudet campus. The primary purpose of outreach products is to act as a catalyst in changing teaching and student learning practices. In fiscal year 1985, the Pre-College disseminated 133 different classroom-related materials, such as teacher guides, student texts and workbooks, and curriculum guides. Distribution of these materials has been limited, however, and consideration of additional marketing strategies could help reach more of the hearing-impaired population.

As shown in figure 4.4, in fiscal year 1985, 205 Pre-College products were available for sale. However, only 38 of the 133 classroom-related materials had sales of 100 or more copies each. Some of these sold as many as 500 copies, but about 90 percent were in the 300-copy-or-less range. Three-fourths (158) of the 205 products available sold fewer than 100 copies each.

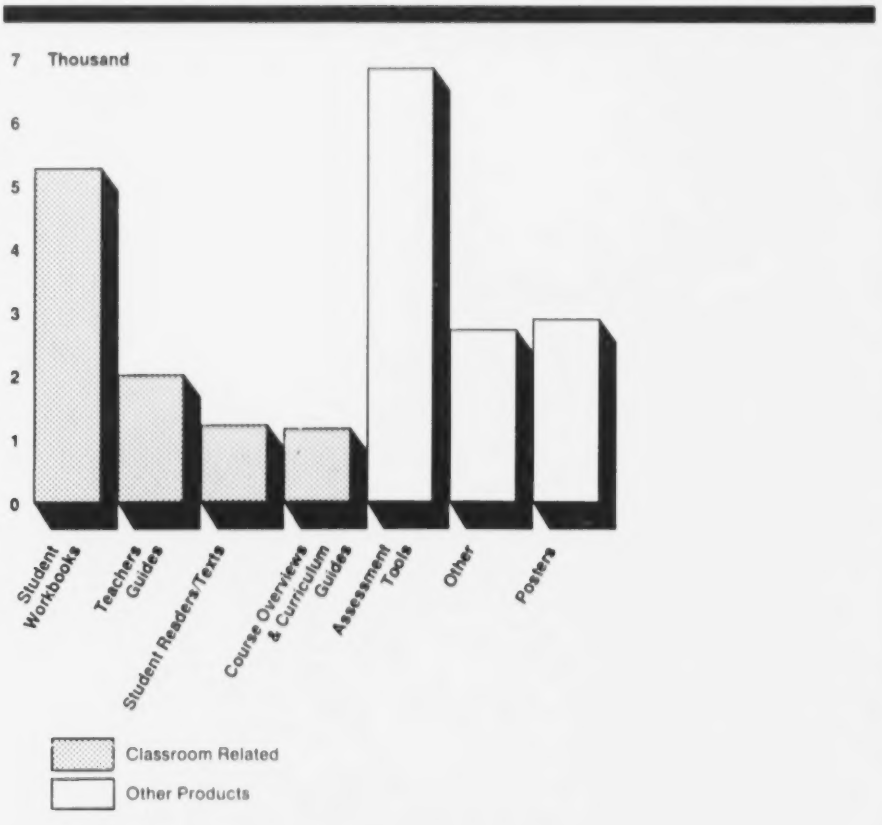
During fiscal year 1984, 192 Pre-College products were available through the catalog, of which 124 were classroom related. Only 22 classroom-related products sold 100 or more copies, with most (18) in the 100-300 copy range.

Several reasons could explain why most Pre-College products had annual sales of fewer than 100 copies. One possible reason is that hearing impairment is a low-incidence handicap, and the demand for materials for hearing-impaired students is smaller than for regular classroom materials. Also, a teacher may need only one copy of a particular resource product or storybook. Further, large quantities of a given text may have been purchased before fiscal year 1984, the first year included in our study.

Figure 4.2: Samples of Pre-College Products

Gallaudet has not stated what percentage of the hearing-impaired population the Pre-College Programs should be reaching. While we cannot say how much market penetration Gallaudet should achieve, it appears that current dissemination efforts reach schools enrolling about 30 to 60 percent of the hearing-impaired, school-age population. Complete enrollment data are unavailable for all elementary and secondary schools that

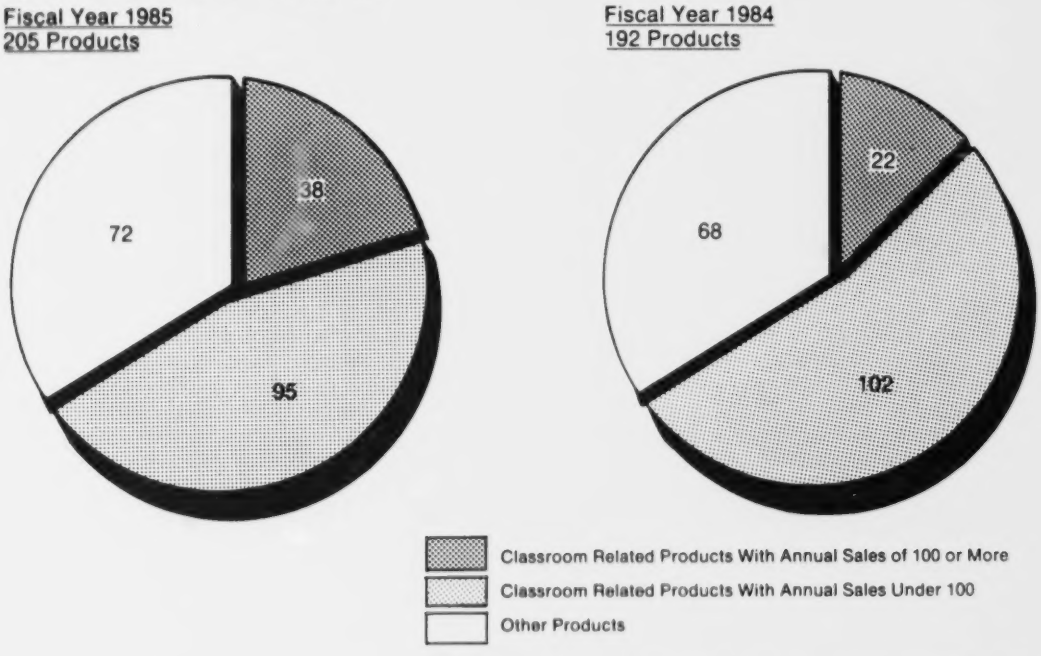
Figure 4.3: Product Sales by Category
(Fiscal Year 1985)



have programs to educate hearing-impaired students. However, Gallaudet estimates that about 75,000 hearing-impaired students were being educated throughout the country in 1986.

Our review of Gallaudet's product sales figures for fiscal years 1984-86 and enrollment data from the American Annals of the Deaf show it sold high-volume products (products with sales of 100 or more copies) to schools containing 24,400 hearing-impaired students—about one-third of the estimated population. These students were in 237 of the 721 schools that had purchased high-volume products. The enrollment at the other 484 schools purchasing high-volume products is not known by us or Gallaudet. However, as an indication of the total estimated enrollment of the schools served by the Pre-College's dissemination efforts, Gallaudet used data available from its Center for Assessment and Demographic Studies to estimate the average enrollment of hearing-impaired

Figure 4.4: Products Available for Sale



students at schools that did not have enrollment data from the American Annals of the Deaf. Using an average enrollment of 43 as developed by Gallaudet, we projected the enrollment at the 484 schools at 20,800 students. When this figure is added to the 24,400 known enrollment, the total estimated enrollment for all 721 schools that purchased high-volume Pre-College products totals 45,200, or about 60 percent of the estimated target population of 75,000 students. Because reliable enrollment data were not available, these estimates are not statistically valid and are being used only as an indication of the number of hearing-impaired students Gallaudet is reaching.

Bookstore Catalog Dominates Pre-College Marketing Strategy

Gallaudet's strategy for marketing Pre-College materials has a variety of options but primarily relies on the bookstore catalog. According to Pre-College officials, their marketing strategy consists of the following:

- The bookstore catalog. About 60,000 copies are sent each spring to customers throughout the world, 20,000 of which go to teachers of the hearing-impaired and special education teachers in the United States.

- A catalog supplement sent each fall to 20,000 teachers of the hearing impaired and special education teachers in the United States.
- Promotional tear-out cards in Pre-College magazines. Each issue of The World Around You and Perspectives for Teachers of the Hearing Impaired have tear-out cards promoting Pre-College products and/or services.
- Customized brochures and flyers handed out at conferences and exhibits beginning fiscal year 1987.
- Exhibits and displays on Gallaudet's campus, other locations in the Washington, D.C., area, and at national conferences throughout the country.
- Advertising Pre-College activities and products beginning in 1986 with the publication Progress Report Monthly mailed to about 12,000 teachers of the hearing impaired and other educators in the United States.
- Promotional mailings to teachers of the hearing impaired, used three times in 1986.
- Acting as a clearinghouse for other published materials. Starting in fiscal year 1980, the Pre-College sent a catalog describing over 100 published curriculum guides to teachers of the hearing impaired. Gallaudet will provide copies of these guides for the cost of printing.
- Conducting follow-up surveys on needs of other schools, focusing on the outreach needs of mainstream programs with emphasis on programs in California, Texas, and Florida, where large concentrations of hearing-impaired students are located.
- Presentations at professional meetings.
- Providing products for teachers to review before purchasing. In July 1987, teachers from 15 public schools spent part of their visit to Gallaudet reviewing Pre-College products.
- Writing articles for professional journals.

As discussed in chapter 1, we conducted telephone interviews with a random sample of 152 purchasers of Pre-College products. About half of the estimated 582 educators who had purchased materials with the intention of using them with hearing-impaired students had learned about Pre-College products through the catalog. About 8 percent had first learned about products through Pre-College promotional materials, activities, staff, or publications other than the catalog. The other 43 percent had first learned about the products from a variety of other sources, such as their supervisors, faculty from other school districts, professional meetings, and workshops.

The catalog lists available products and provides brief descriptions, but to preview a product a buyer must purchase a single copy or borrow one

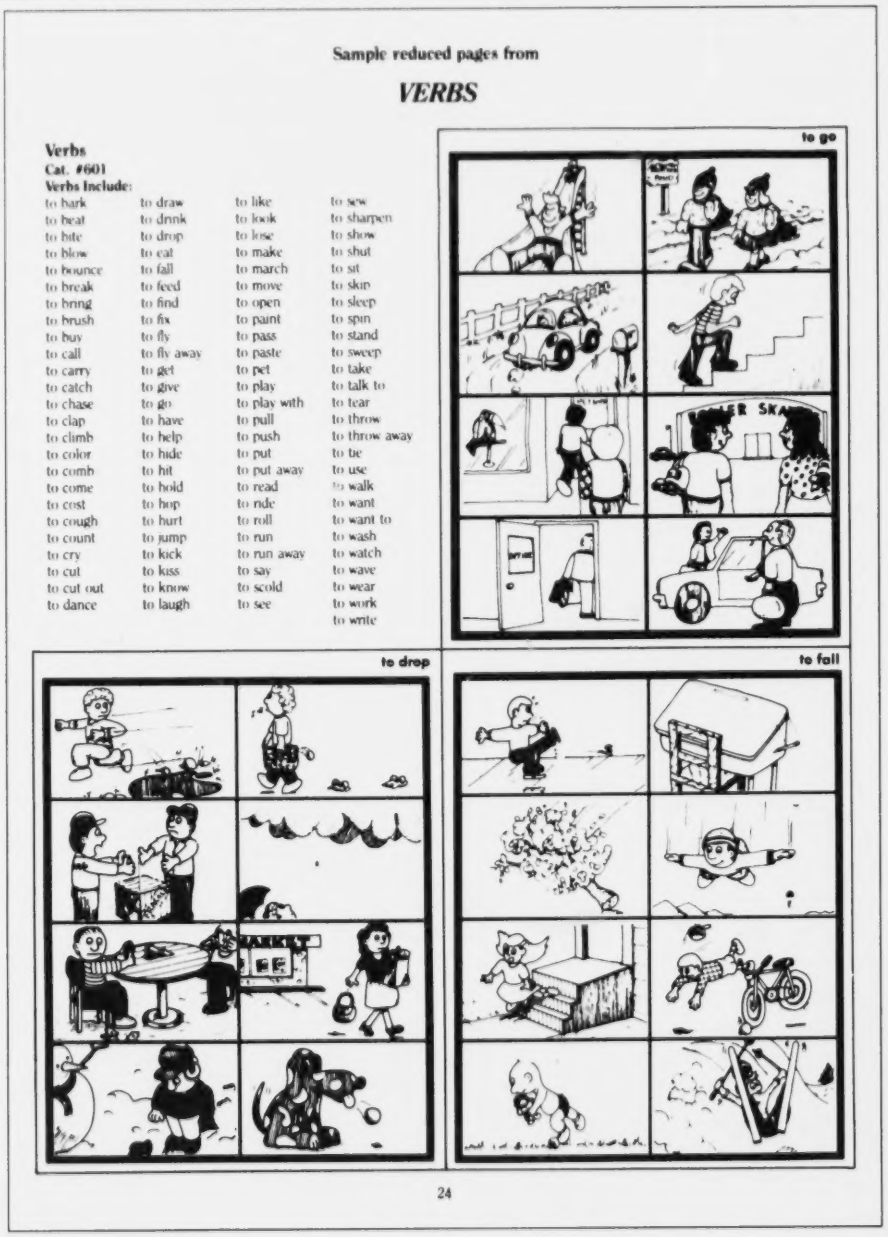
from another source. Currently, the Pre-College does not have a policy of sending examination copies of products to prospective buyers. Several educators told us that their inability to preview products before purchase discouraged sales. They expressed the concern that if they did not examine the product beforehand, they risked buying something they could not use. For example, three educators stated they had purchased materials and later found out that they were inappropriate for their students.

Although it will always have certain limitations as the primary marketing strategy, the catalog could be improved to make it a more useful marketing vehicle. For example, the catalog gives prospective buyers little information about the content or nature of the products. In comparing Gallaudet's catalog to that of a competitor, we noted a difference in the amount of information presented and the method of presentation. The competitor's catalog, in addition to a brief description of the products, provides reduced sample pages from selected publications. The Gallaudet catalog relies on narrative descriptions of its products and shows the cover of selected publications. Pages from the two catalogs are shown in figures 4.5 and 4.6.

Gallaudet should consider revising the format of its catalog to make it more informational. Short of revising the catalog, Gallaudet could distribute a supplement, which would show sample pages from those publications where such information would be useful to potential purchasers.

In January 1987, in recognition of the need to improve its product marketing, the Pre-College Programs established a clearinghouse for instructional products, programs, and services. The purpose of the clearinghouse is to facilitate distribution of Pre-College products and information on innovative programs, and eventually materials developed by other publishers. Since many of the educators we spoke with expressed the need for access to a variety of materials for the hearing impaired, this clearinghouse may help meet that need.

Figure 4.5: Sample Page From Competitor's Catalog



Sample reduced pages from

VERBS

Verbs
Cat. #601
Verbs Include:

to bark	to draw	to like	to sew
to beat	to drink	to look	to sharpen
to bite	to drop	to lose	to show
to blow	to eat	to make	to shut
to bounce	to fall	to march	to sit
to break	to feed	to move	to skip
to bring	to find	to open	to sleep
to brush	to fix	to paint	to spin
to buy	to fly	to pass	to stand
to call	to fly away	to paste	to sweep
to carry	to get	to pet	to take
to catch	to give	to play	to talk to
to chase	to go	to play with	to tear
to clap	to have	to pull	to throw
to climb	to help	to push	to throw away
to color	to hide	to put	to tie
to comb	to hit	to put away	to use
to come	to hold	to read	to walk
to cost	to hop	to ride	to want
to cough	to hurt	to roll	to want to
to count	to jump	to run	to wash
to cry	to kick	to run away	to watch
to cut	to kiss	to say	to wave
to cut out	to know	to scold	to wear
to dance	to laugh	to see	to work
			to write

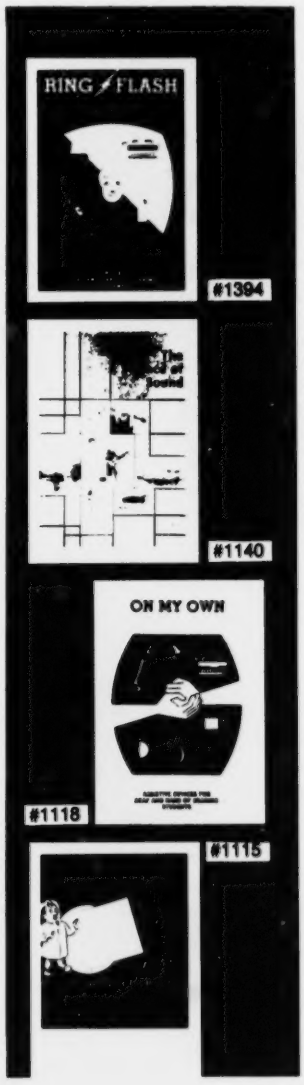
to go

to drop

to fall

24

Figure 4.6: Sample Page From Gallaudet's Catalog



G

THE SCIENCE OF SOUND
(high school)

by Norman Lederman

This exciting book is carefully designed to help hearing impaired students understand, use and enjoy the principles of sound. Students explore the properties of sound—frequency, intensity, time and spectrum—based on their own experiences. The book is clearly illustrated with discussion questions following each chapter. It can be used in the context of either science or communication.

The teacher guide suggests practical, inexpensive and entertaining ways for deaf students to experience sound in the classroom setting.

TEACHER GUIDE (32 pages)
1139 8½ × 11"
$ 5.75

STUDENT BOOK (40 pages)
1140 8½ × 11"
$ 7.95

ON MY OWN
(all ages)

by David Deyo

Hearing impaired students can develop independence through the use of modern assistive devices. This book examines doorbell devices, alarm clocks, telephone amplifiers, TTY/TDDs, phone ring devices, TV caption decoders, and other devices, with discussions of their uses, costs, advantages, and possible drawbacks. Providing a lot of practical information, the book will help students make sensible decisions about the purchase and use of assistive devices.

TEACHER GUIDE (50 pages)
1117 8½ × 11"
$ 7.95

STUDENT BOOK (40 pages)
1118 8½ × 11"
$ 5.75

WHAT IS AN AUDIOGRAM?
(all ages)

by Venita Griggs

Here's a cheery friend to solve all the mysteries of the audiogram, defining different kinds of sound and showing how they register on the chart. Clear and amusing illustrations reinforce the information, and there is room for a child's own audiogram inside the back cover. This charming book is useful for parents, teachers and audiologists as well as students.

1115 Softcover 16 pages 11 × 8½"
$ 7.50

RING/FLASH
(elementary)

by David Deyo

These important materials are designed to teach hearing impaired children proper use of the telephone and the TTY. Students use the materials to practice finding information in directories, getting help from an operator, using good telephone manners, handling emergencies, and other important skills. The student workbook is supplemented by many patient's manuals and the teacher guide is full of suggestions for lesson planning, practice and evaluation.

TEACHER GUIDE (185 pages)
1194 8½ × 11"
$ 14.95

STUDENT WORKBOOK (55 pages, illustrated)
1195 8½ × 11"
$ 6.95

TRANSPARENCY MASTERS (86 sheets)
1195 8½ × 11"
$ 17.50

SET—TEACHER GUIDE, TRANSPARENCY MASTERS, and five STUDENT WORKBOOKS
1196
$ 61.00

Language/Reading

OUR STATUE OF LIBERTY
(elementary/junior high)

by Jean Slobodzian

Beautiful, inspiring and informative, our book about the Statue of Liberty covers the history and symbolism of the statue, from its earliest conception through plans for the Liberty Centennial celebration in 1986.

Easy-to-read narration and lovely black-and-white illustrations tell the stories of immigration to the United States. Ellis Island, the

Quality of Products Given High Marks by Users

To assess the quality and usefulness of Pre-College Programs' materials, we conducted telephone interviews with 152 purchasers of outreach products. These purchasers included elementary and secondary schools, associations, groups, and individuals who had purchased educational materials that had sales of 100 or more copies between fiscal years 1984 and 1986. The materials purchased were classroom products and teacher guides. We selected these products because they had a wide distribution as well as the potential to change educational practices. As shown in the tables below, most purchasers of Pre-College materials in our universe were well satisfied with the quality and usefulness of the products. (See app. I for a detailed description of our sample methodology.)

When asked to assess the quality of Pre-College products, using the five criteria shown in table 4.1, at least 85 percent characterized the products as good to very good.

Table 4.1: Percent of Purchasers Rating Pre-College Materials Good or Very Good

Criteria	Percent of purchasers
Scholarship	95
Clarity of presentation	94
Ability to meet teaching needs of educators	92
Contribution to teaching of the hearing impaired	85
Presentation suited to learning styles of the deaf	85

We asked educators at some schools to evaluate specific products in addition to giving us an overall assessment of Pre-College product quality. At these schools we randomly selected a product from among those they had purchased during fiscal years 1984, 1985, and 1986. Based upon our sample results, we estimate that 582 customers had purchased Pre-College products with the intention of using them with hearing-impaired students. Of that number, an estimated 400 had reviewed the product before purchasing it, and a significant number had considered the product equal to or better than similar products they had reviewed, in terms of the six criteria shown in table 4.2.

Table 4.2: Percent of Purchasers Who Considered Pre-College Products Equal to or Better Than Similar Products Reviewed

Criteria	Percent of purchasers
Topic or subject area coverage	96
Addressing school curriculum objectives	95
Ease of implementation	93
Educator's ability to use materials for more than 1 year	91
Students' ability to apply information	85
Variety of activities present	83

About 91 percent of the 582 educators who had purchased a product with the intention of using it with hearing-impaired students used it for that purpose. When asked to compare it with similar products they had used, most considered the Pre-College product equal to or better than similar materials they had used in terms of the criteria shown in table 4.3.

Table 4.3: Percent of Users Who Considered Pre-College Products Equal to or Better Than Similar Products Used

Criteria	Percent of users
Time required in preparation	88
Student interest	87
Observed positive student outcomes	87
Meeting measured curriculum objectives	85
Suitability for use in recommended grade level	73

In general, the Pre-College products appear to have met the expectations of those who bought and used them. Nearly all purchasers (96 percent) and users (95 percent) would continue buying and using Pre-College materials in the future.

Eight Schools Visited

To corroborate the data we were given during our telephone interviews with purchasers of Pre-College products, we visited eight schools included in the phone survey. Refer to figure 1.5 for the geographic dispersion of the schools visited. In particular, educators commented favorably upon the content, language, and organization of Pre-College instructional materials. They told us

- the content of Pre-College materials reflected a knowledge of the needs and interests of deaf students;
- the controlled language used in the materials enabled deaf students to understand the content more easily; and

- the organization of tasks into small, manageable units enabled students to master assignments more readily.

In addition to their general satisfaction with Pre-College materials, the educators indicated the need for additional materials not currently available through the Pre-College. For classes containing students with either higher or lower than average achievement levels, educators said they needed instructional materials of varying levels of difficulty. Teachers at seven schools, for example, said they needed materials for lower functioning students, particularly the multihandicapped. At three schools, teachers specifically mentioned the need for a greater variety of reading materials for hearing-impaired students.

Educators at four schools also expressed a need for classroom materials that could be more easily adapted to different situations than the current Pre-College curriculum guides. They had found it necessary to write their own materials to comply with state curriculum requirements, to conform to regular classroom materials being used, or to meet the needs of their students.

Opinions of Nonpurchasers at 25 Schools

In addition to interviewing and visiting purchasers of Pre-College materials, we interviewed educators at 25 schools with hearing-impaired students that had not purchased the more popular Pre-College materials during fiscal years 1984, 1985, and 1986.

Educators at 24 of the 25 schools were aware that Gallaudet's Pre-College Programs published materials for the hearing impaired. In fact, 14 of the schools used some of the less popular Pre-College materials, such as the signed English books. These books print signs along with their corresponding English words so that ideas may be understood more easily by hearing-impaired students. Twelve of the schools used Pre-College materials infrequently because it was their practice to teach hearing-impaired students from regular classroom materials.

Materials published by other companies were being used to some extent at 19 schools. Two reasons were cited most frequently for purchasing other publishers' products. Staff at 11 schools stated that other products had better topic or subject area coverage, and staff at 10 schools said that other products addressed school curriculum objectives better.

Pre-College Training and Technical Assistance Activities

Training and technical assistance activities are a major component of Gallaudet's efforts to carry out its national mission. Between 1978, the first year training and technical assistance services were provided, and fiscal year 1986, Model and Kendall staff have provided training and technical assistance to teachers, administrators, and support staff at 89 schools and 10 service organizations in 48 states and the District of Columbia. These activities consist of workshops, meetings, exhibits, and conference presentations mostly at residential, day, and public schools. The training activities, such as workshops and conferences, are designed to facilitate the development and use of new skills and knowledge related to educating the hearing impaired. Technical assistance activities are usually conducted on a one-to-one basis and are designed to help schools identify and solve problems they encounter in educating hearing-impaired students.

In fiscal year 1986, the Pre-College Programs spent about $1 million on training and another $1 million on technical assistance, providing training for about 6,000 individuals and technical assistance to over 300 participants.

At our request, Gallaudet provided the following information on its training and technical assistance activities since 1978:

- Most (70 percent) of the schools or organizations served were visited by Pre-College Programs' staff three times or less.
- Most (54 percent) of the contacts were initiated or sponsored by Gallaudet.
- About half of the visits served 1 to 20 persons and about one-third served 21 to 98 persons.
- About half the visits lasted 6 days or more.

The kinds of training and technical assistance provided to the 89 schools and 10 organizations included (1) regional administrator meetings (56 percent of the schools and organizations participated in these), (2) regional training meetings (36 percent participated), and (3) workshops focusing on academic and teaching topics (23 percent participated).

The audiences served were teachers of the hearing impaired, residential school dormitory personnel, school district coordinators of education for the hearing impaired, and activities support staff, such as speech pathologists and audiologists.

Beginning in fiscal year 1984, training and technical assistance activities began to include a larger representation of public schools. Before 1984, these services had been provided at 67 schools, of which 10 were public. Since 1984, services were provided to another 22 schools, of which 14 were public. (See table 4.4.)

Table 4.4: Recipients of Training and Technical Assistance

Recipient	FY 1978-83	Recipients added FY 1984-86	Total
Residential schools	46	8	54
Public schools	10	14	24
Day schools	8	0	8
Other schools	3	0	3
Other activitiesa	4	6	10
Total	**71**	**28**	**99**

[a]Other activities include state agencies, commissions, and associations.

Participants Like Training and Technical Assistance

To assess the quality and usefulness of training and technical assistance activities, we interviewed a representative sample of 43 participants from the 89 schools and 10 organizations. We estimate that 91 percent of the schools that received training and technical assistance (1) judged its overall quality as good or very good, (2) believed that it was at least of some use in effecting change in the way hearing-impaired children are educated, and (3) would request services from Gallaudet in the future. In addition, over two-thirds (69 percent) of our sample told us Gallaudet followed up with them on the problems they encountered or progress they made after receiving the training or technical assistance.

We estimate that 34 of the 99 recipients also received training and technical assistance from other providers of similar kinds of services. At least 77 percent of those recipients considered Gallaudet's services and staff to be equal to or better than those of other providers in terms of the criteria shown in table 4.5.

Table 4.5: Percent of Recipients Who Considered Pre-College Training and Technical Assistance Equal to or Better Than That of Other Providers

Criteria	Percent of recipients
Coverage of the topic area	94
Knowledge of the subject area	94
Meeting the recipient's objectives	82
Ability to produce educational changes	82
Relevancy to the educational setting	77

Two of the eight schools we visited received Pre-College training and/or technical assistance during our sample period. Our visits to these schools generally corroborated the positive feedback we heard during our phone interviews.

Conclusions

Gallaudet estimates that about $9 million of its 1986 Pre-College budget was spent researching, developing, and disseminating products and services intended to help fulfill its mission of stimulating other exemplary programs. Most users of these products and services that we surveyed were highly satisfied with their quality and usefulness. The generally positive feedback we obtained indicates the Pre-College provides products and services that users believe make positive contributions to the education of hearing-impaired children. However, educators also indicated a need for additional materials not currently available through the Pre-College, such as instructional materials for students with higher or lower than average achievement levels and classroom materials that could be more easily adapted to different teaching situations.

Notwithstanding high user satisfaction, Gallaudet could make improvements in disseminating products and services to assure more hearing-impaired students are exposed to them. While available data indicate that Pre-College products are reaching schools attended by about 30 to 60 percent of the hearing-impaired school-age population, most classroom-related materials had annual sales under 100 copies. Because Gallaudet relies primarily upon its bookstore catalog to disseminate product information and stimulate sales, we believe Gallaudet should consider various strategies to maximize its use, such as revising the format of the catalog to make it more informational, providing courtesy copies of new products to its subscribers, and instituting a refund or return policy on its products.

In view of the financial investment Gallaudet makes in researching and developing products and services to accomplish its national mission, the Pre-College Programs should reevaluate its marketing objectives and determine if its marketing strategy can be better structured.

Recommendation

We recommend that the President of Gallaudet University reevaluate the overall Pre-College marketing strategy, in order to determine how its products can be made available to more of the hearing-impaired population.

Gallaudet Comments

Gallaudet's President believes that the university's market penetration represents an outstanding achievement, especially since some schools may not be free to buy whatever materials they might choose. According to the President, many schools and school districts are under state or local mandates to employ particular curricular materials. Nevertheless, he said Gallaudet intends to perform market research studies that will help in judging the effectiveness of current marketing strategies and potential alternatives.

Technical Description of GAO's Survey and Sampling Methodology

During September and October 1986, we administered a standardized telephone interview to a random sample of persons who had (1) purchased classroom or teaching materials from the Gallaudet bookstore during fiscal years 1984, 1985, and 1986 and/or (2) received training and technical assistance from Gallaudet's Pre-College staff between 1978 and 1986. The telephone interview was conducted with the aid of a computer to record the information obtained.

This appendix contains a technical description of our interview survey design, pretesting of the interview survey, selection of sample, calculation of the nonresponse rate, and sampling error.

Interview Survey Design

The interview survey was designed to elicit the respondents' experiences and opinions about the educational materials and training and technical assistance services developed by Gallaudet's Pre-College Programs. Specifically, we asked material and service users

- general background questions about the respondent and the educational environment of the material and service users,
- reasons for selecting Gallaudet's materials and/or services,
- how materials and/or services compared with other similar materials and services, and
- general impressions concerning the overall quality of the materials and/or services.

Pretesting the Interview Survey

Before the interview survey instrument was used, it was pretested with (1) five teachers of the hearing impaired who were familiar with classroom and teaching materials and (2) five representatives from educational institutions who had purchased educational materials and services from Gallaudet's Pre-College Programs. In both cases, the individuals represented the types of respondents likely to be found in the population surveyed.

Two approaches were used in pretesting the interview survey. The first approach consisted of face-to-face meeting with the pretest subjects. Trained GAO staff administered the survey instrument as if it were an actual interview and noted the time it took to answer each question and any difficulties the subject experienced. Procedures were used to elicit the subjects' description of the various difficulties and considerations encountered as they answered each question.

Based on the results of each pretest, we revised the instrument to ensure that (1) the potential subjects could and would provide the information requested and (2) all questions were fair, relevant, easy to answer, and, to the extent possible, free of design flaws that could introduce bias or error into the study results. We also tested to ensure that completing the interview would not place too great a burden on the respondent.

Sampling Plan for Materials and Technical Assistance Users

Before selecting a sample of users of Gallaudet's teaching and classroom materials, we identified 213 educational materials that were developed through the Gallaudet Pre-College Programs and sold through the Gallaudet University Bookstore. Our major focus was educational materials that (1) were designed to be used directly by hearing-impaired students or teachers in a classroom setting and (2) had sold more than 100 units between 1984 and 1986. If any materials that fit this criteria had an accompanying document, for example a student classroom reader with an accompanying teacher's guide, we included the accompanying document even if it had not sold over 100 units.

To identify the universe of users of Gallaudet materials that had sold over 100 units ("high-volume" materials), we obtained sales invoices from the Gallaudet Bookstore. There were 1,544 invoices that listed one or more of the high-volume materials. We then identified 721 of the invoices as being from either an elementary or secondary school and 823 as being from either an individual or an organization. We conducted a telephone interview with a random sample from each group. For each respondent, we randomly selected one high-volume material from their invoice. The majority of the questions in the interview survey focused on this selected unit. In addition, for each respondent we selected one "low-volume" material from their invoice (if available) and directed a limited number of questions to these materials. Low-volume materials were defined as having sold fewer than 100 units between 1984 and 1986 and designed to be used directly by hearing-impaired students or teachers of the hearing impaired.

Because we were interested in the interview data from respondents who had purchased the materials with the intent of using them with hearing-impaired children, we identified those respondents in each group. Table I.1 shows the size of the universe, survey sample, respondent populations, estimated number of respondents who purchased the materials with the intent of using them with hearing-impaired children, and their associated sample errors.

Table I.1: Sampling Plan for Gallaudet Materials

	Universe	Sample	Respondents	Estimated respondents using materials with hearing-impaired children	Sampling errors
Elementary and secondary schools	721	164	104	343	±32
Individuals/or organizations	823	96	48	239	±60
Total	**1,544**	**250**	**152**	**582**	**±70**

To identify the universe of recipients of Gallaudet's training and technical assistance, Gallaudet staff reviewed files of all entities that received assistance and recorded descriptive information. We identified 99 entities (generally elementary and secondary schools with a hearing-impaired population) that had received assistance between 1978 and 1986. We selected a random sample of 49 entities for the telephone survey and collected data from 43.

Sampling Errors

We projected our survey results from a sample of users of Gallaudet materials and technical assistance to the universe of all users who purchased materials between 1984 and 1986 and/or received training and technical assistance since 1978. Because these projections were made from a statistical sample of users, each estimate has a sampling error. A sampling error is at most an estimate, derived from a statistical sample, that can be expected to differ from the actual universe of characteristics we are estimating.

Sampling errors are usually stated at a specific confidence level—in this case, 95 percent. This means that the chances are 95 out of 100 that, if we surveyed all users, the results would differ from the estimates we have made, based on our sample, by less than the sampling error of that estimate.

For this study the sampling error for each estimate does not exceed plus or minus 11.4 percentage points for users of Gallaudet materials and plus or minus 10.1 percentage points for users of Gallaudet training and technical assistance. This means that the chances are 95 out of 100 that our estimates of users' perceptions about Gallaudet's materials and services will be within 11.4 and 10.4 percentage points, respectively, from the actual values of the universe of users.

Appendix II

Pre-College Research Projects Conducted During Fiscal Years 1984-86

Title	Status	Cost range	Pre-College involvement/ funding and support	Description
Research Group: Pre-College Administration and Faculty:				
1-A Pilot Study of Social Interaction Between Deaf and Hearing Elementary Students Learning LOGO	Ongoing	$10,000 or less	Pre-College administration, faculty, and staff are responsible for the design, conduct, and reporting of the project. Pre-College Programs provided the funding and support.	Assesses the quality of social interaction occurring between hearing and deaf students in a mainstream setting and the students' attitudes toward using LOGO, a computer software package.
2-Organization/School Climate Studies	Ongoing	$10,000 or less	Pre-College administration, faculty, and staff are responsible for the design, conduct, and reporting of the project. Pre-College Programs provided the funding and support.	Studies the organizational context in which development and dissemination occur and identifies organizational problems related to the achievement of program goals.
3-Formative Evaluation of Kendall's Curriculum Guides	Ongoing	$10,000 or less	Pre-College administration, faculty, and staff are responsible for the design, conduct, and reporting of the project. Pre-College Programs provided the funding and support.	Determines if revised Language Arts, Math, Science, and Social Studies Curriculum Guides are appropriate and usable.
4-How Students Identify Themselves as Deaf, Hard-of-Hearing, or Hearing Impaired	Completed spring 1986	$10,000 or less	Administrative review by the Pre-College, release time for faculty-initiators and student participation. GRI peer review, interviewer, and computer support provided.	Compares and contrasts the self-expressed identities of deaf children of hearing parents with deaf children of hearing-impaired parents.
5-Investigation of Interaction Patterns in Structured Settings for Multiple Handicapped Hearing-Impaired Students	Completed spring 1984	$10,000 or less	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project. Pre-College Programs, advisement through Gallaudet Graduate School, and GRI technical support were provided.	Identifies the interaction patterns of multi- handicapped deaf students both in structured and unstructured classroom settings.
6-Social Skills in Deaf Adolescents	Completed spring 1986	$10,000 or less	Pre-College administration, faculty and staff responsible for the design, conduct, and reporting of the project. Pre-College Programs and a Gallaudet Presidential award provided funding and support.	Field tests a social skills and social problem solving curriculum on deaf adolescents which was originally developed for hearing students.
7-Improving Cognitive Skills in Deaf Adolescents Using Logo and Instrumental Enrichment	Completed spring 1985	$10,000 or less	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project. Pre-College Programs provided funding and support.	Investigates the classroom use of LOGO (computer software) and Instructional Enrichment for improving cognitive skills of low-achieving math students at the Model School.

(continued)

Title	Status	Cost range	Pre-College involvement/ funding and support	Description
8-Microcomputer Usage in Programs for the Hearing Impaired	Completed spring 1985	$10,000 or less	Pre-College administration and staff responsible for the design, conduct, and reporting of the project in cooperation with the Conference of Executives of American Schools for the Deaf. Pre-College Programs provided funding and support.	Determines the purpose and extent to which micro-computers are used in programs for hearing-impaired students and whether those schools have written policies governing the acquisition and use of hardware and software packages.
9-Development of Criterion-Referenced Tests	Ongoing	$10,000 or less	Pre-College administration, faculty, and staff are responsible for the design, conduct, and reporting of the project. Pre-College Programs provided funding and support.	Develops and validates curriculum-based assessment instruments for linking instructional decisions to program goals.
10-Investigation of Story Retelling	Completed spring 1986	$10,000 or less	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project. Pre-College Programs provided funding and support.	Investigates the validity of the story retelling process as a measure of deaf students' reading comprehension.
11-Analysis of the Model Schools' Placement Tests	Completed spring 1985	$10,000 or less	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project; student participation was also provided. Gallaudet University provided funding and support.	Evaluates and refines the testing and placement process for assigning new students to English levels at the Model School.
12-Use of the Kaufman-Assessment Battery for Children (KABC) With Hearing Impairments	Completed spring 1984	$10,000 or less (Pre-College only)	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project; student participation was also provided. Pre-College Programs in collaboration with the Gallaudet faculty provided funding and support.	Examines KABC's assessment capability using the norms established for hearing children and comparing the results with psychological assessment instruments used at Kendall.
13-Program Evaluation of the Model School	Ongoing	$10,001- $50,000	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project. Pre-College Programs provided funding and support.	Compares the characteristics of the Model School's student body with hearing- impaired students nationwide; identifies the different characteristics of its students in English and Math placement; and determines the overall academic achievement level of its students on the Stanford Achievement Test.
14-Evaluation of the Model School's PEP Program	Ongoing	$10,000 or less (Pre-College only)	Pre-College administration monitored activities, faculty and students participated in study; and faculty was given release time. Pre-College Programs and Gallaudet University provided funding and support.	Determines whether the Post Secondary Enrichment Program (PEP) produces favorable results in student learning, particularly in Language Arts; and identifies ways for improving the methods of instruction.

(continued)

Title	Status	Cost range	Pre-College involvement/ funding and support	Description
15-Follow-up Study of the Model School's Graduates	Ongoing	$10,001- $50,000 (Pre-College only)	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project, faculty released for the time of the study. Pre-College Programs and National Technical Institute for the Deaf provided funding and support.	Determines the post-secondary educational endeavors, the employment status of the Model Schools' graduates and their perceptions of the various aspects of the program.
16-Program Evaluation of Kendall School	Ongoing	$50,001- $100,000	Pre-College administration, faculty, and staff responsible for design, conduct, and reporting of the project. Pre-College Programs provided funding and support.	Compares the characteristics of Kendall students with those of hearing-impaired students nationwide and describes the academic achievement of its students on standardized tests and curriculum-based assessment instruments.
17-Kendall Assessment Center for Hearing Impaired: An Evaluation of Services Provided	Completed spring 1985	$10,000 or less	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project. Pre-College Programs provided funding and support.	Evaluates feedback from parents and professionals regarding the Assessment Center's process and the impact of its recommendations.
18-Hearing-Impaired Children's Performance on Tests Used to Identify Learning Disabilities	Ongoing	$10,000 or less (Pre-College only)	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project, student participation. Pre-College Programs and Gallaudet Research Institute provided funding and support.	Investigates the validity of using tests that are developed for hearing children for assessing the learning disabilities in and hearing-impaired students.
19-Development of Writing Evaluation Instrument for Hearing-Impaired Elementary School Students	Ongoing	$10,000 or less	Pre-College faculty and staff responsible for the design, conduct, and reporting of the project; students also participated. Pre-College Programs along with GRI collaboration provided funding and support.	Identifies and describes the characteristics of written language samples of deaf children for use in the development of an assessment tool.
20-Math Word Problem Solving	Ongoing	$10,000 or less (Pre-College only)	Pre-College faculty and staff responsible for the design, conduct, and reporting of the project; students also participated. Pre-College Programs and University of New Orleans provided funding and support.	Identifies various language structures in mathematical word problems that create difficulties for deaf students.
21-Kendall's Formative Evaluation Unit Development Process	Completed summer 1985	$10,000 or less	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project. Pre-College Programs provided funding and support.	Determines the effectiveness of involving faculty in the curriculum development process by utilizing teams of teachers to develop instructional units based on Kendall's curriculum.

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Title	Status	Cost range	Pre-College involvement/ funding and support	Description
22-Auditory and Speechreading Functioning Levels	Ongoing	$10,000 or less	Pre-College administration, faculty, and staff responsible for the design, conduct, and reporting of the project. Pre-College Programs provided funding and support.	Investigates the relationships of auditory and speechreading functioning levels with the degree of hearing loss, the level of hearing assisted by hearing aid usage, and the age of the students.
Research Group: Gallaudet Research Institute:				
23-Speech Pattern Recognition by Children	Ongoing	10,001- $50,000	Kendall students were used as subjects in the study. GRI provided funding and support.	Examines the ability of deaf versus hearing children to distinguish parts of speech having different sound patterns.
24-Neurobehavioral Assessment of Deaf Children and Adolescents	Ongoing	$50,001- $100,000	Pre-College students served as subjects and the faculty and staff provided administrative support. GRI provided funding and support.	Attempts to improve the clinical assessment of hearing-impaired children by developing a neuropsychological test battery appropriate for their needs and by developing techniques not previously used with deaf students.
25-Investigation of Human Figure Drawing by Deaf Children	Completed fall 1984	$10,000 or less	Pre-College students participated as subjects. GRI provided funding and support.	Evaluates the characteristics of deaf children's human figure drawing in comparison to those of hearing children; determines if the interpretations of those human figure drawings by deaf children vary according to their personality or experiences; and seeks to improve the psychological assessments of deaf children based on the human figure drawing tests.
26-Annual Survey of Hearing-Impaired Children and Youth	Survey completed for school year 1983-85; survey is ongoing for 1985-86	$250,001- $500,000	Pre-College faculty and staff participated in completing the questionnaire forms for the Pre-College students. GRI provided funding and support.	Describes the characteristics of students enrolled in the hearing-impaired programs across the United States and maintains a data base on this population for use in research and planning.
27-Stanford Achievement Test Parallel Forms Reliability Study	Completed spring 1984	$10,001- $50,000	Pre-College students participated as subjects; their faculty administered the test and other staff coordinated Pre-College's involvement. A grant from the Office of Special Education and Rehabilitation Services and GRI both provided funding and support.	A substudy of a project for establishing the reliability of the Stanford test scores of hearing-impaired children by using two different forms of the seventh edition of the Stanford Achievement Test.

(continued)

Title	Status	Cost range	Pre-College involvement/ funding and support	Description
28-Voice Pitch Tactile Display for the Deaf	Phase 1 completed fall 1985	$10,001- $50,000	Pre-College students participated as subjects and staff assisted in the study's administration. The Small Business Association and GRI provided funding support.	Demonstrates the effectiveness of and seeks to improve a new vibro-tactile aid used for speech reception (a device worn on the wrist that translates sound frequencies into vibrations), and develops and tests the training procedures used for introducing deaf children to tactile information (tactile means the sense of touch).
29-Mother/Infant Interaction Studies	Ongoing	$250,001- $500,000	Parents and Pre-College faculty and staff of infants enrolled in Kendall's Infant program participated in the study; tests conducted by Kendall's audiologists are included in the data base. GRI and the Beltone Foundation provided funding and support.	Describes the nature of the interaction between deaf and hearing infants with their deaf or hearing mothers in order to determine the mothers' strategies for securing and maintaining the visual attention of their young hearing-impaired children.
30-Longitudinal Study of Developing Literacy in Three-to-Eight Year Old Hearing-Impaired Children	Ongoing	$100,001- $250,000	Pre-College students participated as subjects. GRI provided funding and support.	Identifies factors or combinations thereof which facilitate or impede deaf children's progress toward literacy.
31-Investigation of the Meta-linguistic Abilities of Deaf Children	Completed summer 1985	$10,001- $50,000	Kendall students participated as subjects. GRI provided funding and support.	Seeks to bridge gaps in the cognitive research literature on child development as it relates to the similarities of deaf and hearing children's development.
32-Factors Predictive of Academic Achievement of Adolescent Deaf Students	Ongoing	$100,001- $250,000	The Model School students have participated in over 1,000 hours of assessment activities related to the project; and faculty and staff arranged the student participation. GRI, in collaboration with Gallaudet faculty and outside consultants, provided funding and support.	Identifies factors for predicting the reading abilities of adolescents enrolled in total communication programs who have either hearing parents or deaf parents.
33-Longitudinal Study of Public School Programs for Hearing-Impaired Students	Ongoing	$100,001- $250,000	The Model School's students provided data for the pilot testing of the assessment devices. GRI and the Department of Education provided funding and support.	Describes in detail the interrelationship of student characteristics, the nature and quality of instructional placement, home influences, and academic achievement for support students enrolled in mainstreamed settings (current year's study focuses on mathematical achievement).

(continued)

Title	Status	Cost range	Pre-College involvement/ funding and support	Description
34-Modifications of Manually Coded Sign Systems by Deaf Adolescents	Completed fall 1985	$10,001- $50,000	Pre-College provided minimal support. GRI provided funding and support.	Describes how hearing-impaired students, who regularly use a manually coded form of English, tend to modify these artificial systems to make them more efficient for communication.
35-Longitudinal Study Question Processing by Hearing-Impaired Children	Completed spring 1986	$50,001- $100,000	Pre-College provided student participation, and faculty and staff support. GRI provided funding and support.	Investigates how deaf children acquire the ability to comprehend questions, and the function and effectiveness of teacher questioning as an instructional strategy in the education of deaf children.
36-Norming for Hearing- Impaired Students of the Seventh Edition of the Stanford Achievement Test	Norming completed; studies on topic are ongoing	$100,001- $250,000	Pre-College students participated in all aspects of the norming, faculty and staff conducted testing, and some test scoring, and provided significant consultations; the Model School collaborated in writing test interpretation guidelines for parents. The Department of Education provided grants, Gallaudet Computer Center provided support, and GRI provided funding and support.	Establishes comprehensive norms for hearing-impaired students of the 1982 edition of the Stanford Achievement Test; develops a set of testing and scoring materials appropriate for use with deaf children; and seeks to understand the relationship between educationally relevant characteristics of hearing-impaired children and their academic achievement.
Research Group: Other Universities, Organizations, and Gallaudet Units:				
37-Roletaking and Social Behavior of Deaf Children	Completed spring 1984	$10,000 or less (Pre-College only)	Logistical support and faculty and student participation were provided by the Pre-College Programs. Gallaudet University provided some of the funding and support.	Studies relationships between roletaking and social behavior of deaf children to determine whether roletaking predicts their behavior; and evaluates social skills training programs.
38-Comparison of Treatments to Improve Social Skills in Deaf Children	Completed summer 1986	$10,000 or less (Pre-College only)	Pre-College provided both logistical support and faculty and student participation. Gallaudet University provided some of the funding and support.	Compares different types of social skills training programs in order to discover the most effective way for improving deaf children's social skills.
39-Alpha Micro-computer Project for Hearing-Impaired Children; an Interactive Approach to Reading, Computer Writing and Communication	Ongoing	$10,000 or less (Pre-College only)	Pre-College provided both logistical support, faculty and student participation, and also purchased equipment, and provided on-campus housing. Penn State provided some of the funding and support through a Department of Education grant.	Field tests procedures and materials using a micro-computer to teach young deaf children to read and write.

(continued)

Title	Status	Cost range	Pre-College involvement/ funding and support	Description
40-Relationship of Temperament and Cognitive Style in Preschool Deaf Children	Completed spring 1984	$10,000 or less (Pre-College only)	Pre-College provided faculty and student participation. George Mason University provided some of the funding and support.	Continues studying the relationship between temperament and cognitive styles in deaf and hearing preschool aged children in order to develop more effective intervention strategies (This project extends from research conducted on nonhandicapped students outside the Pre-College).
41-Instrumental Enrichment	Completed fall 1984	$10,000 or less (Pre-College only)	Pre-College provided both logistical support and faculty and student participation. Gallaudet and the Pre- College Programs provided funding and support.	Seeks to improve the cognition of hearing-impaired high school students, in areas such as thinking skills and problem solving, and the use of appropriate language planning and sequencing events.
42-Speech Training Device for Profoundly Deaf Children	Completed spring 1986	$10,000 or less (Pre-College only)	Pre-College provided both logistical support and faculty and student participation. A National Institute of Health grant provided some of the funding and support.	Designs, develops, and tests a personal computer-based speech training device for aiding the speech development of prelingually deaf children (loss of hearing before speech and language developed).
43-Survey of Non-Native Hearing-Impaired Students in Selected Regions of the United States	Completed spring 1985	$10,000 or less (Pre-College only)	Pre-College provided staff and computer support. Gallaudet University provided some of the funding and support.	Updates the national/ international survey of current developments and trends related to deaf students from non-English speaking homes.

[a]When the Gallaudet Research Institute (GRI) is listed as the funding source for the projects, Pre-College Programs' funds may have also been included. (For details, see p. 22 of the report.)

Profiles of Six Pre-College Research Projects Ongoing or Completed During Fiscal Years 1984-86

Speech Training Devices for Profoundly Deaf Children

Background

A research team from Johns Hopkins University initiated this research project during the summer of 1985. The research was aimed at applying microcomputer technology for improving the speech production of prelingually, profoundly deaf children. The Pre-College released one of Kendall's speech therapists to assist the Johns Hopkins team in developing the software that is appropriate and motivating for young deaf children. Gallaudet faculty from the Audiology Department served as consultants, and Kendall agreed to be one of the field test sites for the project. The project falls under the Pre-College's curriculum and instruction research category. The funding for the project was provided by the National Institute for Health and the National Institute for Orphan Development Studies. The project was completed during spring 1986, and the Pre-College estimated its costs within the $10,000 or less cost range.

Objective and Description

Utilizing years of basic research on the physiological characteristics of speech production, the project's objective was to develop and test a special microcomputer device (hardware system and software package) to assist in teaching speech to prelingually, profoundly deaf children who do not benefit from hearing aids. This device was tested during therapy sessions at Kendall and in the student's home, so that parent and student could practice together. The target population for the project includes children with great difficulty developing intelligible speech due to the severity of their hearing loss. Pre-College officials stated that speech training is required for these children because, without sufficient hearing, speech will not develop spontaneously.

Project Results

The Pre-College stated that the software developed by this project gave the students immediate information on their performance of a task. The teachers were provided accurate diagnostic information of the student's performance that assisted them in pinpointing problems and tracking the student's progress with more clarity and accuracy. According to the Pre-College, the potential impact of the application of microtechnology

on communication of profoundly deaf children in special programs will be applicable to students with less severe hearing losses in other programs, including the mainstream environment.

The preliminary findings of this research were presented at the National Conference on Microcomputers in the Education of the Hearing Impaired in the spring of 1985. Because of the successful results of the research, Gallaudet and Johns Hopkins have made the computer device available to Kendall for continuing to do more research on a limited basis. Johns Hopkins is also seeking additional funding through a small innovation research grant to further evaluate the software and prepare it for dissemination. Kendall plans to participate in future phases of the project.

Instrumental Enrichment

Background

In 1981, the Model School and a faculty member from Gallaudet University studied the effectiveness of instructing deaf high school students with an instrumental enrichment program. This research project falls under the Pre-College's research category for curriculum and instruction. The project was completed during fall 1984, and the Pre-College estimated its costs within the $10,000 or less cost range.

The Instrumental Enrichment theory and program applications have grown out of nearly 30 years of work by an individual psychologist. The basis of approach assumes that culturally disadvantaged adolescents do not always develop problem-solving and thinking skills to their fullest ability because they have not had sufficient opportunities to reflect on their own thinking processes. These adolescents may need such skills overtly taught, rather than left to incidental learning. The Instrumental Enrichments program includes content-free materials, activities, and teaching strategies that are intended to help these adolescents develop and transfer their thinking skills to specific school and life situations.

Although prior research shows that deaf children are comparable, as a group, to hearing children on nonverbal measures of intelligence, educators of hearing-impaired children state that effective problem-solving skills are not used by their students in classroom and written work. The educators explain that the reasons for these performance difficulties

stemmed from a lack of experiences and communication handicaps that accompany early deafness, rather than from intellectual inability.

Objective and Description

The project's objective was to determine if the instrumental enrichment program is effective for instructing deaf high school students. The project involved several studies following an experimental group of the Model School's incoming freshmen during fall 1981 through fall 1984 that were exposed to the instrumental enrichment instruction, and a control group of similar students not receiving the program. A teacher with instrumental enrichment training incorporated a series of sequenced visual, verbal, and geometric problems into regular classroom instruction. The teacher helped the students solve these problems and discussed how their mental strategies were used. The program involved thinking skills, such as finding patterns, space orientation, comparisons, analyses, classifications, following and creating instruction, time relationships, and sequencing. The studies looked at growth in thinking skills and problem solving reflected on tests administered over a 2- and 3-year period.

Project Results

The results of the studies showed that students in the group receiving the instrumental enrichment program improved significantly over the students not given the instrument enrichment instruction in analysis of problem situations and sources of error; completeness, organization, and planning in problem-solving situations; abstract thinking; and other cognitively-based classroom behaviors.

Pre-College officials stated that these studies have resulted in a number of changes to the Model School's instructional program; many faculty, staff and administrators trained in instrumental enrichment instruction; and three faculty members becoming certified trainers. Ultimately, through dissemination, the Pre-College aims to introduce the improved instruction methodology to teachers outside the Gallaudet campus. Meanwhile, new programs of instrumental enrichment instruction for deaf adolescents have been established at Western Pennsylvania School for the Deaf in 1985, Maryland School for the Deaf during 1983-85, and Indiana School for the Deaf in 1986. In addition, Pre-College officials stated that numerous presentations, state and regional conferences, workshops, and (scholarly) papers of the instrumental enrichment program have reached teachers and other professionals interested in hearing-impaired adolescents.

Microcomputer Usage in Programs for the Hearing Impaired

Background

The Office of the Pre-College Dean for Curriculum and Instruction initiated this project during fall 1983. Along with several development projects, this project focused on achieving Pre-College's long-range goal of increasing student and faculty computer literacy and competence across all academic programs and levels. The development projects included the Computer Managed Educational System, KendallNet, and the Software Clearinghouse. Pre-College officials stated that in working toward this goal, they seek to act as a catalyst in the use of microcomputer technology in the education of hearing-impaired youth in the United States. This project was completed during spring 1985, and the Pre-College estimated that its costs were within the $10,000 or less cost range.

Objective and Description

The project consisted of two national surveys collecting information on the status of microcomputer usage in programs for hearing-impaired youth across the United States and assessing the computer-related needs of these programs. The first survey was done during fiscal year 1984 and sought to determine what software was used by programs for hearing-impaired students across the nation. The programs surveyed were listed in a directory published annually by the American Annals of the Deaf. Survey responses were received from 160 programs, including residential schools and day programs.

The second survey was done in fiscal year 1985. Its purpose was to gather information about

- how many microcomputers were used in programs for hearing-impaired students,
- what types of computers were used,
- what they were used for,
- what kinds of software were used,
- whether programs had hardware and software budgets, and
- who was responsible for computer use in the program.

The Pre-College received 310 responses (more than 60 percent) from programs that were contacted. The responding programs included 67 percent from day classes, 24 percent from residential schools, and 8 percent from day schools.

Project Results

According to Pre-College officials, the results from both surveys indicated that the implementation of computer instruction in programs for the hearing impaired was similar to that in general public education and that computer purchases and use increased dramatically in the time between surveys. The results also indicated that few programs had written plans for systematic microcomputer implementation or operating funds specifically for hardware and software purchases. In addition, the residential and day schools were found to have more hardware and software available than the public school day classes for hearing-impaired students. Pre-College officials also stated that the survey results verified a need for more communication and information sharing among educators of hearing-impaired students.

In 1984, the results of the first survey were presented during a symposium at Gallaudet University on Applications of Technology in Education and Communications for the Deaf. The results of the second survey were presented in 1984 at the Conference of Educational Administrators Serving the Deaf, and in 1985 at the National Conference on Microcomputers in Education of the Hearing Impaired. The results were also published in an article of the 1985 edition of the American Annals of the Deaf. Pre-College officials stated that the surveys' results have helped shape the development projects relating to microcomputer usage at the Pre-College, including focusing and fine-tuning the development projects and planning a national conference on microcomputers in the education of the hearing impaired.

Social Skills in Deaf Adolescents

Background

This project studied the effectiveness of an adapted curriculum for teaching social skills to deaf adolescents. The project built on prior research that focused on the social cognition of pre-adolescent deaf children and hearing adolescents. The research with hearing adolescents

showed good evidence that social skills are important and can be taught. Since the field testing with these populations had very positive results, a Pre-College faculty member initiated this project to include the social skills of deaf adolescents. The project was categorized under Pre-College's research category for curriculum and instruction. Pre-College officials stated that before this project, no appropriate curriculum was available to teachers and counselors of deaf adolescents for teaching social skills.

According to Pre-College officials, students with poor social skills have a higher incidence of delinquency, a likelihood of dropping out of school, and significantly more mental health problems as adults. In addition, since handicapped children encounter more rejection than nonhandicapped children, Pre-College officials believe that acquiring effective social skills should not be taken for granted. Since this project supported the Pre-College goal of strengthening and expanding existing mental health programs and the concepts of "necessary educational services," it received about $18,000 through the Gallaudet Presidential Award System. A pilot study using videotapes was conducted in June 1984, and the project started in the fall of 1985. The Pre-College estimated its costs to be $200 for the pilot study and within the $10,000-or-less cost range for the project.

Objective and Description

The project's objective was to provide a structured social skills curriculum for teachers, counselors, and child care workers in schools and programs for deaf adolescents. Social skills training is a process including problem solving, decision making, social behaviors, assertiveness, relaxation, and interpersonal communication. For this project, videotapes were to be captioned for use by deaf students. The curriculum was field tested in public school classrooms for the hearing impaired in Montgomery County, Maryland, and in career development classes at the Model School.

Project Results

Pre-College officials stated that a curriculum was developed and found to be successful in improving social skills of deaf adolescents. The initial impact of this study has resulted in program changes at the Model School and in increased interest and awareness among educators of the hearing impaired, including public school programs. With a few revisions, the new curriculum is being used with about 90 first year students at the Model School. Pre-College officials stated that the results of the study were presented at the Eastern Regional Conference of Hearing

Impaired in Washington, D.C., in October 1985, and the Second National Conference on Habilitation and Rehabilitation of Deaf Adolescents in Tulsa, Oklahoma, during April 1986.

Pre-College officials also stated that several educators of the deaf attending the second national conference expressed an interest in participating in future field testing of the curriculum. Future collaboration with other researchers of social skill development is also being explored. In addition, a second Gallaudet Presidential Award will support the continuing work of this project to develop an instrument for measuring the social and emotional development of deaf adolescents. According to the Pre-College, the need for such an assessment instrument has been long recognized by professionals in the field of deafness.

Developing and Defining an Identity: Deaf Children of Deaf and Hearing Parents

Background

During the summer of 1984, two Kendall preschool teachers initiated a study to compare and contrast the self-expressed identities of deaf children of hearing parents with deaf children of hearing-impaired parents. The Pre-College classified this study as an individual research project that falls under its research category for curriculum and instruction. The study was completed during spring 1986. The Pre-College estimated its costs for the study within the $10,000 or less cost range.

Objective and Description

The objective of this study was to determine how children view themselves as individuals and as deaf people. Pre-College officials stated that identity plays an important part in a child's emotional and social development. When communication does not develop normally, as is often the case with early deafness, the development of a positive identity of oneself may be endangered. The Pre-College stated that unlike earlier studies of hearing-impaired children, this study used information taken directly from the deaf children rather than from their parents and teachers. Pre-College officials said that the information, opinions, and comments discussed in earlier studies may not have reflected the authentic experiences and feelings of deaf children.

The study involved a structured videotaped interview consisting of 36 questions that was designed to elicit open-ended, verbatim responses from children using their own communication modes. The interview was given to 43 students (ages 7 to 15) at Kendall, including 14 children with deaf parents and 29 with hearing parents. The interview focused on determining how aware children were of themselves as deaf persons, how confident and accepting they were of their identities, and how their self-identification compared to the severity of their hearing impairment.

Project Results

The results of the study generally showed that students identified with groups such as deaf or hard-of-hearing on the basis of how much they could hear and how they communicated with other people. The researchers found that almost a fourth of the students felt their identity group might change when they become adults. The researchers also found that deaf children of deaf parents seemed more concerned about losing additional hearing through illness, while deaf children of hearing parents were inclined to think they might become hard-of-hearing or hearing. Deaf children of deaf parents also had a tendency to define hearing people as those who could hear well, whereas deaf children of hearing parents defined hearing persons in terms of their ability to speak.

Pre-College officials said that these results are important because how children view themselves affects their social and emotional development. Additionally, Pre-College believes that educators in special programs and public schools can promote a healthy development by being aware of and better understanding the ways hearing-impaired children feel about themselves, as well as helping children identify and deal with their own perceptions.

The results of the study were presented during a symposium in June 1986 at Gallaudet University and at an eastern regional conference for educators of the hearing impaired in Pittsburgh during October 1986. The Pre-College officials stated that the researchers also presented preliminary information from this study to educators of the hearing impaired at conferences for the National Association of the Deaf Forum in January 1985 and the Gallaudet University Graduate School in October 1985 and October 1986. In addition, the results of the study are being incorporated into Kendall's Social Studies Curriculum Guide, which provides ways for deaf children to understand deaf culture and develop a positive awareness of themselves.

Program Evaluation of the Kendall School

Background

In the fall of 1982, the Pre-College began a project on program evaluation at Kendall for determining how representative their students are in the target population of hearing-impaired students in special and public school placements. The focus of each years evaluation is determined by goals established by the Pre-College management teams in accordance with Gallaudet's mission and goals. The Pre-College mission involves the development and dissemination of exemplary programs, products, and techniques for improving the quality of education for hearing-impaired children in the United States. In order to have effective program development and improvement, Pre-College officials stated that they must be aware of their hearing-impaired student population.

Pre-College officials stated that this is an ongoing project that provides the demographic and academic achievement information needed to monitor the representativeness of its student population. The project falls under the Pre-College's research category for administration. The Pre-College estimates its annual costs for this project range from $50,001 to $100,000.

Objective and Description

Program evaluations at Kendall provide information to the Pre-College administration, faculty, and staff about the characteristics and achievement of its students that support program planning, development, and improvement. A variety of student background and achievement data are collected annually on all of its enrolled students and compared with students in other programs for the hearing impaired. The student comparisons are made possible by Kendall's participation in the Annual Survey of Hearing-Impaired Children and Youth and the Seventh Edition of the Stanford Achievement Test. Mainframe computer facilities for maintaining and analyzing the database are provided by Gallaudet at no cost.

Project Results

The results of this project show that Kendall students are similar to students in other programs for the hearing impaired nationwide in terms of cause of deafness and prevalence of secondary handicaps. However, Kendall has a higher rate of students with severe and profound hearing

losses. Longitudinal program data also showed that average standardized achievement test scores of its students have risen in reading and math during 1982-85 and its graduates' reading comprehension scores exceeded their standards in 1986. The range of intelligence of Kendall students is normally distributed, with most students falling in the average range.

Pre-College officials stated that an important outcome of the ongoing program evaluation has been the development of a database at Kendall with many applications. The database supports formative curriculum evaluation efforts aimed at program improvement and research on the development of curriculum-based assessment instruments. As the Pre-College uses more data to aid them in decision making and program improvement, Kendall's database will undoubtedly expand and improve. The Pre-College stated that its 1985-86 Research and Development Plan proposes the development of a Pre-College database which should improve the linkage between Kendall and the Model School's mainframe databases and the microcomputer-based curriculum management education system.

Pre-College Products With Sales of 100 or More Copies During Fiscal Year 1985

Products	Distribution
Classroom Related:	
Student readers:	
Great Escapes	109
Growing Up Sexually	199
Counseling	106
Deaf Eagle and the Bank Robber	110
The Legend of Sleepy Hollow	162
The Hans Brinker	126
Student workbooks:	
Career Explorations	162
Coping With Conflict	140
Career Awareness	502
Loans and Credits	100
Getting a Job	294
Science of Sound	107
New Assertive You	310
On My Own	205
Skills for Living	287
Reading Sampler #2	341
Reading Sampler #1	326
Interaction: Word Play	122
Self-Understanding	159
Environmental Science Student Guide	174
Measurement: Length and Area	109
The Proper Preposition	174
Roots	150
Decisions, Decisions	225
Feelings Keys to Value Form B	206
Feelings Keys to Value Form A	235
ABC Book	218
Teacher guides:	
Growing Up Sexually	107
Science of Sound	116
Speech Reading in Context	230
On My Own	229
Catch Tomorrow: Career Awareness	210
Environmental Resource	106

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Products	Distribution
Curriculum guides:	
Auditory Skills (Kendall)	140
Social Skills (Kendall)	112
Science (Kendall)	112
Language Arts (Kendall)	228
Survival Skills: A Basic Skills Program	199
Other Materials:	
Game boards:	
Lifetime of Learning	100
Posters:	
Reformatted Posters	2875
Assessment tools:	
Meadow-Kendall SEAI - Preschool	2407
Meadow-Kendall SEAI - School Age	4147
Meadow-Kendall SEAI - Emotional Assessment	267
Topical Publication:	
SSI Handbook	115
Other:	
Guidelines for Writing and Rewriting	212
Hospital Handsigns Poster	303
Emergency Handsigns Poster	211

Comments From Gallaudet University

GALLAUDET UNIVERSITY

OFFICE OF THE PRESIDENT
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KENDALL GREEN
800 FLORIDA AVENUE, N.E.
WASHINGTON, D.C. 20002

September 18, 1987

Mr. Richard L. Fogel
Assistant Comptroller General
United States General Accounting Office
Human Resources Division
441 G Street, N.W.
Room 6864
Washington, DC 20548

Dear Mr. Fogel:

I have received a copy of a report concerning your audit of Gallaudet's Pre-College Programs entitled Deaf Education: The National Mission of Gallaudet's Elementary and Secondary Schools, and have asked appropriate members of the Gallaudet community to review and comment upon it. Before presenting our reactions to this report, I would first like to express my appreciation to the GAO staff who have conducted the three audits of Gallaudet programs during the past three years. The previous reports have provided information that we have found very valuable in our efforts to manage Gallaudet programs with the greatest possible efficiency and effectiveness, and I am sure that the current report will prove equally valuable. However, I have some concerns about a small number of items in the current report on the national mission of Pre-College programs and would like to present them to you at this time. These can best be understood if they are organized in the same way as the report format: 1. Mission cost (especially as shown in the Gallaudet accounting system); 2. Internal control of research and development projects; 3. Marketing of Pre-College products.

National Mission Costs

The report recommends that Gallaudet University establish a system to account for expenditures by two major functions: school operations and national mission. The current system follows standards (published jointly by the National Association of College and University Business Officers and the American Institute of Certified Public Accountants) designed to provide consistency and comparability in accounting and reporting in higher education and to comply with the eight functional expenditure classifications in the Higher Education General Information Survey/Integrated

Postsecondary Education Data System mandated by the Department of Education. These functional categories are required for most of our financial reporting. The concept of national mission as a functional category is new to us and is unique to the Pre-College units. In the past there has never been a request for us to consider national mission as a functional category in our accounting system.

The current system is heavily oriented toward placing accounting responsibility with management authority. Therefore, accounting follows organizational structure which in turn is compatible with the normal functional categories in higher education.

The report points out that costs associated with the concept of national mission have been estimated. Many tasks involved in the operation of the school and fulfillment of the national mission not only overlap but are often coincidental and difficult or impossible to separate. For example, when a teacher is testing a new product in a classroom, to what extent is he or she carrying out the national mission and to what extent normal school operations? Therefore, accounting for national mission time will always involve estimates regardless of the system or functional categories used. Our estimates of national mission time and costs are, of course, subjective and, as your report points out, could be higher or lower than other subjective estimates that might be made by us or by others. There are defensible arguments that all costs of the model programs are national costs or that no practical allocation of costs in this way is really feasible. The problem we face, and one that the audit report does not address, is that the "living laboratory" embodied in the Pre-College programs is difficult to compare to other programs.

Because of existing reporting requirements we do not think we should change our basic functional accounting classifications. However, we will seek effective and efficient ways to improve our estimating and to provide parallel accounting records to support supplemental reporting on a school operation/national mission basis.

Internal Control of Research Projects

The report expresses concern about the relatively informal approach taken in the selection, approval and monitoring of individual research projects. In this regard, I would like to point out that the research function at Gallaudet is relatively small, and that, to date, we have found the relatively informal controls discussed in the report to be

effective. I appreciate that the report notes that research administrators were found to be knowledgeable about the status of individual projects. In any event, as the report states, we have begun to enhance existing controls. Our major concern has always been that excessive internal control should not interfere with the creative process in research, and we recognize that there must be a delicate balance between effective control and the freedom to take new directions. With respect to tracking individual project costs, I would like to point out that when the Research Institute was founded, a decision was made to institute a "center" type of organization rather than a project oriented organization. According to the center concept, researchers with common interests are brought together to work on problems that fall within specific areas. At Gallaudet, these areas currently include the following: assessment and demographic studies, education and human development, genetics, auditory and speech sciences and technology assessment. We account for costs separately for these general areas of investigation. Results and implications of research findings are regularly presented in professional journals and on a more systematic basis in the annual report of the research institute.

In general, although your report has already proved useful to us in determining new directions for our own internal control process, it has not pointed out specific practices that you would like to see instituted. We appreciate the opportunity therefore to take a relatively flexible approach to determining standards. In particular, the report does not address the question of what control standards are currently in use at comparable institutions, and we feel that we will need to investigate this issue ourselves as we review our standards.

Marketing of Pre-College Products

The report expresses concern about the process used to market Pre-College products. We take this criticism seriously and intend to perform market research studies that will help us to judge the real effectiveness of our current marketing strategies as well as others that might be proposed. As far as we know, the audit staff did not conduct market research studies on the effectiveness of current marketing vehicles. In general, I would like to point out that regardless of the marketing vehicles being used, we appear to have succeeded in penetrating a very large proportion of the potential market--30 to 60% by your own estimate and appreciate the recognition given to this fact in the audit report. We believe that

comparative studies would demonstrate the relative strength of this level of penetration in comparison with similar research and development programs.

Our own assessment of this level of penetration is that it represents an outstanding achievement. although your report does not point this out, recall that not all schools are necessarily free to buy our products even if they wish to. Many schools and school districts are under state or local mandates to employ particular curricular materials and we have very little control over this. In this context, our market penetration of perhaps 60% (45,000 students) is impressive indeed. In fact, given the estimate in the report of $9 million spent on national mission, our approximate cost to reach each student would be only $200. I believe that this represents an excellent level of efficiency and effectiveness.

In closing, I would again like to express my appreciation to the GAO staff and would hope that our relationship can continue to be an effective one.

Sincerely,

Jerry C. Lee
President

JCL:ma

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